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Local Fiscal Equalization: a New Proposal and an Experiment

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This paper formalizes the new schemes of fiscal equalization that has been decided in 2009 and will be introduced at the local level in the canton of Fribourg (Switzerland) in 2011. It develops the political economy of the proposal with the aim of understanding the participative democratic process that led to the acceptance of a radical change in the canton's equalization policy, the normative concept of solidarity which founds this policy and its model implementation.

Section one offers a short historical survey of the reform and the time path bringing the initial proposal to maturity. Section two summarizes the dissatisfaction with the present to-be-abandoned system. Section three exposes the normative concept and explains the positive rules that were initially formulated for developing the project. These boundaries can only be understood in reference to the history of and the dissatisfactions with the existing system. The new scheme includes in distinct forms revenue and expenditure equalization programmes. They are detailed in section four and five respectively. Section 6 analyses the expected performance of the new system and its democratic acceptance in the communes.

1 A short history of the reform

1.1 Prior to 1989

The first cantonal equalization system at the local level in the canton of Fribourg dated 1877. It concerned the communes' contributions for individual members of "poor" families who were hospitalized. Further schemes were developed in 1903, 1933 and 1963. The present system was devised in 1974-5 and introduced in 1976. It was adjusted in 1979 after two experimental years, following the recommendation of a special committee where all stakeholders were for the first time represented. During all these years, fiscal equalization was enacted through ordinances of the Canton's Executive and up-dated each two years.

1.2 The 1989 tentative

Following a succession of ten parliamentary demands in the late 1970s and early 1980s, a special committee with representatives of the communes (8) and the canton (4) prepared a report and presented in 1989 a tentative draft law "on the measurement of the financial capacity of the communes and equalization". The procedure of consultation of the communes and political parties revealed a good acceptance of the method for measuring the financial capacity of the communes, but much scepticism, or even opposition about the second part. The project was separated in two draft laws. The first was readily accepted in 1989 and enforced in 1991. It is the one which is applied today and is described in section 2 below. The second draft law was heavily disputed in Parliament in 1991 and rejected by

101 votes against and only 3 votes for it! [1] Interesting are the arguments for rejection because, as we shall see, they were in fact conditions to be fulfilled before any future reform would be debated (BGC, 1992: 322):

1] There should be a new analysis on the re-assignment of responsibilities and functions between the cantonal and the communal layers;
2] There were too many too small communes: equalization would hamper any effort for the territorial reorganisation of the communes. Incentives should be prepared at the cantonal level for their amalgamation.
3] A future draft law should not only consider revenue equalisation, but also expenditure equalization in an appropriate measure.
4] Part of the equalization scheme should be horizontal. The design should also permit to introduce intra-regional equalisation (for inter-communal cooperation on specific functions and special purpose districts, for example).
5] There should be a substantial contribution of the canton to equalization.

The Canton's Executive had no way out but to give a new impulse to its public finance and management policies regarding local governments. Thus, except for a new calculation of local financial capacity, the old 1979 system remained in place.

1.3 The new equalization scheme

In the early 2000s time had come to produce a new equalization policy. During the 1990-2000 decade, the communes in canton Fribourg fulfilled most of the requirements that were expressed in the 1991 negative parliamentary vote. Voluntary amalgamations of communes have reduced their number from 259 units in 1990 to 168 units today (Dafflon, 2000: 841). Also, considerable progress has been made in tax management: with the 2001 annualisation of income taxation, almost all communes have updated the tax process with monthly payments required from tax debtors so that the fiscal year and the accounting year coincide. In addition, user charges for water distribution, for sewage and waste water treatment and for solid waste management have been introduced so that the principle of polluter-payer becomes effective. Remaining 1991 conditions were in the power of the cantonal authorities, not the communes.

The chronology of the process leading to the new equalization scheme contains four stages: 2002-2004, the preliminary studies; 2005-2007 the design; 2008-mid 2009 the procedure of consultation; and fall 2009-2010 the legislative and

[1] The history of local fiscal equalization in the canton of Fribourg is given in Dafflon B. et al. 2004, chapter 1. The author was chief economist in the cantonal Department of communes and was a member of the 1979 committee. In 1984-1988, he acted as expert for the special committee who produced the 1989 tentative draft law. He is the author of the new scheme which will be enforced in 2011.

democratic process. Figure 1 sketches the concept building and the democratic and parliamentary process that leads to the new system.

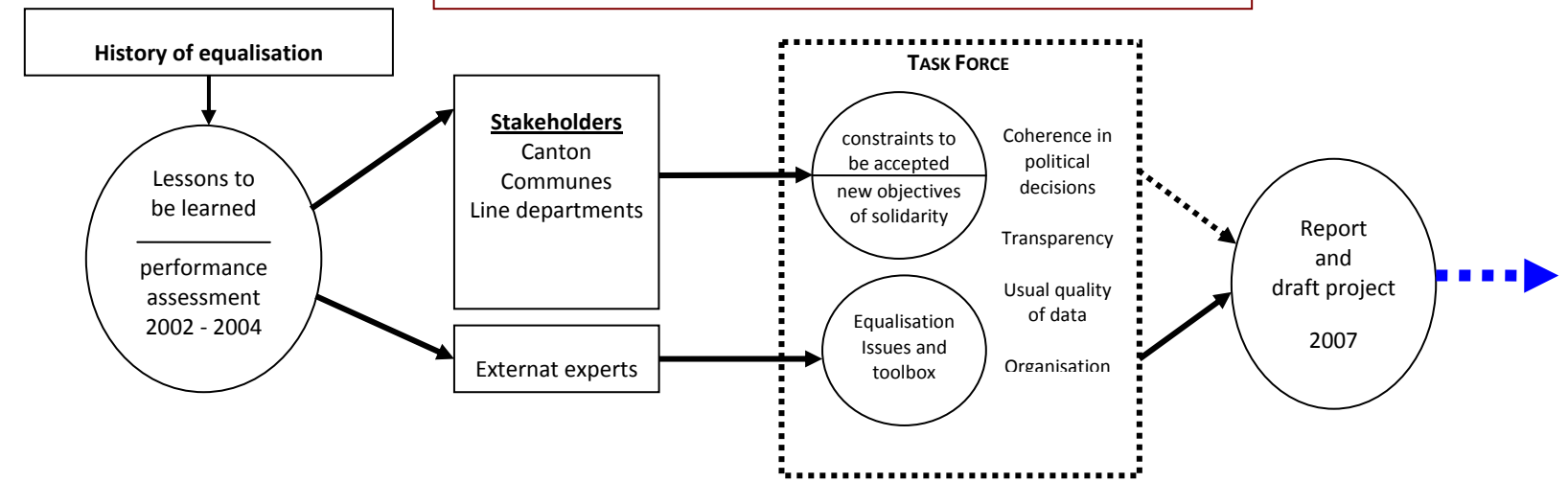
At the starting point, no one precisely knew what were the contours of the system to be replaced? No performance evaluation had been attempted since the early 1980s. The system had been built up through successive additional financial contributions of the communes to cantonal expenditures, some sort of cost-sharing system with various equalizing components (see section 2.1). Dissatisfaction was high but much diluted. The first stage was to scrutinize the system, to estimate its performance and see whether it could be partly reformed or should be totally abandoned. This is discussed in the next section: as we shall see dissatisfactions with the present system initiated the conditions for the new one.

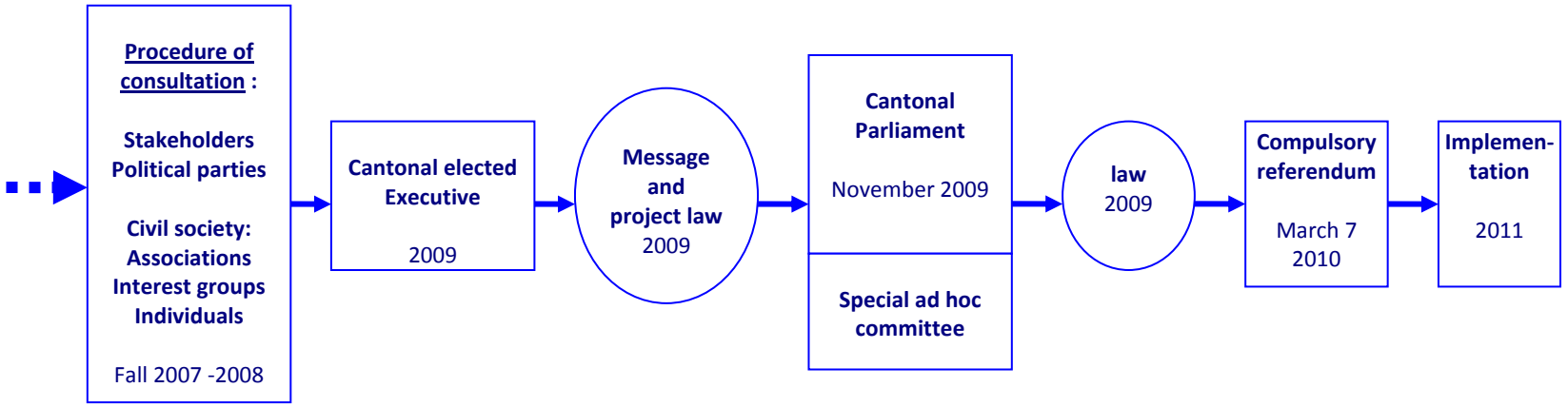
2005-2007.- Once it was decided that the equalisation policy should be reformulated anew, the Canton's Executive appointed a Task Force of fifteen members with an equal number (7) of representatives from the communes and from the cantons. The Task Force was headed by the Minister of Institutions in charge of the administrative supervision of local authorities' activities. Communal representative were elected executive of small and large, rural and urban, French and German speaking communes; cantonal representatives were high-rank civil servants from various ministries. The author of this paper acted as expert. It is worth mentioning that although the mandate of the Task Force and the expert did not delineate their respective competences, a consensus was rapidly in place: the Task Force established the normative framework of the future new system and took all political decisions and the weightings necessary in the design of the new system. The expert was in charge of all the technical and incentive studies; he also has to scrutinize the coherence of the political decisions. One could say that all that concerned "solidarity" as ethical and political issues was in the hand of the Task Force; all that concerns the translation of the concepts into policy aims and tools was in the hand of the expert. Sections 3, 4 and 5 below present the result of the expertise, backed by the Task Force and adopted in the law.

2008-2009.- The results of both the study of the existing system and the new proposal were extensively published and presented to the communes.[2] As usual in Swiss participative democracy, the project draft law was put to open consultation with the communes, the political parties and the citizens' association. This is not a mere formality: feedbacks are frequent and are seriously read, analysed if not taken into consideration.

[2] See Dafflon et al. 2004 and Dafflon and Mischler, 2007. The two publications contain a CD-rom with all the calculations in detail, with the step-by-step evaluation for each of the 168 communes. There was an enormous effort to present in layman language the policy analysis and proposals. Special workshops were organised in French and German and well attended for those local elected councillors who were more curious about technical details.

Figure 1 Concept Building + Legislative and Democratic processes





Legislative and democratic processes

2009-2010.- After consultation, the draft law was decided by the Canton's Executive and transmitted to the cantonal Parliament with an explicative Message dated July 7, 2009. On November 13, 2009, the cantonal parliament approved the new law with 85 favourable votes, 4 refusals and 4 abstentions (BGC, 2009: 1949).[3] Owing to its financial incidence, the new law was submitted to popular referendum on March 7, 2010 and accepted by 76.2% of the voters with a participation of 47.2% of the registered electors. Only 5 out of 168 communal electorates refused the new law. Such rates of participation and acceptance are rather unusual in cantonal ballots. The question is why so; what is so attractive in the new law both for the canton and the communes? Section 6 answers.

2 Description of the present system: reasons for the reform

2.1 Description of the present system

The present system of local fiscal equalization in Fribourg operates in three steps: (i) the calculation of a global index of financial capacity for each commune, (ii) thereupon the classification of the communes in six classes which (iii) are used to weight their per capita contributions to twenty-seven domains of cantonal expenditure (Dafflon and Tóth, 2003; Dafflon and Mischler, 2007: 166ss).

From 1990, the calculation of a global index of financial capacity mixes an indicator of local fiscal resources, which counts for 2/3, and an indicator of local financial needs (1/3). The indicator of fiscal resources is based on the average per-capita revenues of two fiscal years, deriving from the cantonal taxes on personal income and wealth, as well as on corporate profits and capital within the commune, compared to the per-capita tax receipts calculated for the canton as a whole.[4] Local financial needs are measured by a combination of three indices: the inverse of the population density, economic activity and demographic growth. The indicator of local financial needs in calculated as the simple arithmetic average of the three index values. The two indicators – the indicator of local fiscal resources and the indicator of local financial needs – serve for the ranking of the communes,

[3] The Fribourg cantonal legislative assembly counts 110 elected members. On this occasion, 17 were absent.

[4] Since this indicator is based not on the effectively collected tax revenues but rather on the *tax capacity* of the commune, here we are dealing with a kind of representative tax system (RTS) on the cantonal level. Several Swiss cantons apply the RTS to estimate the tax capacity of their constituency. For a definition of the RTS, see Cordes, Ebel and Gravelle, (eds.), 1999, The Encyclopedia of Taxation and Tax Policy, The Urban Institute Press, Washington D.C. The system is also applied in Canada (Bird and Slacke, 1990) and in France (Gilbert, 1997).

whereby the cantonal average is valued at 100 points, and the indicator values of each commune are calculated with reference to this average.

On the basis of the global index of financial capacity, the communes are distributed in six classes: the "rich" ones, from class 1 to 3 and the "poorer" from class 4 to six. The system of classification operates with weights developed from the inverse class of each commune. Inverse class is defined as the hypothetical class number that a commune would be assigned if the series of class numbers followed in reverse order. Thus, for communes situated in class 6 the inverse class is 1, for communes in class 5 it is 2, for those in class 4 it is 3 etc. The weights (W) apply to the population (H) of the commune (i): thus $[W_i \times H_i]$, normally in relative terms that is in proportion to the total $\Sigma_i[W_i \times H_i]$. Obviously, this series of inverse classes is the outcome of a choice which corresponds to the current practice rather than any equalizing logic. Other reverse scales are conceivable.

Classes and weight in the present equalization system

Class	1	2	3	4	5	6
Weight	6	5	4	3	2	1

Finally, the relative position of the communes serves to differentiate their per capita contributions to twenty-seven (2007) cantonal functional expenditures, using six different equalizing formulas; four equalizing transfers are grants-in-aid paid by the canton to the communes. In 2007, in the current account there were 57 vertical financial relations between the canton of Fribourg and its communes, 37 were communal contributions to cantonal expenditures of which 27 included an equalizing component; 20 were cantonal specific grants-in-aid to communes, of which 4 only with an equalizing component. Table 2 summarizes the general context of equalization.

Only two equalizing formulas – though the more important in total sum – use the weighting system described above; the other four equalizing formulas use directly the global index of financial capacity as a weight attached to their population number. Note that there is no systematic logic between the functions and the formula. Table 3 gives the various forms of equalization. Detail calculations are given in Annexure I "Contributions of the communes to cantonal expenditures, 2005-2007, functional distribution" and Annexure II "Contributions of the communes to cantonal expenditures, 2005-2007, equalizing effects".

Needless to say that the whole system is a labyrinth world. When starting the first global analysis in 2002, we experienced a situation where no one had a coherent bird's eye view of the system and knew where we were

heading to.[5] Reform was urgent if only for reason of administrative simplicity and political visibility. But there were other motives for changing the system.

Table 2 General context of the equalization system 2007, Number of transfers per function

Functions	Cantonal specific grants-in-aid paid to the communes revenue-sharing	Of which with an equalizing component	Communal contributions to cantonal expenditures	Of which with an equalization component
Justice, police, public order	1	0	4	2
Education	3	0	9	7
Culture, leisure, sport	2	0	1	0
Health	1	0	2	0
Social Affaires	5	4	17	16
Roads, transport and communications	0	0	3	2
Environment	2	0	1	0
Economy	2	0	0	0
Finance	3 + 1 revenue-sharing	0	0	0
Total	20	4	37	27
Amount in CH francs	22'762'484 = 0.9% of cantonal expenditures	14'796'815	284'603'506 = 11% of cantonal revenues = 25% of total current communal expenditures	240'915'161 = 85 % of the total contributions; of which the equalization proportion is 61 %
Equalizing effect		No estimation		23'150'957 = 9,6%

Source: Dafflon and Michler, 2007, chapter 7 Table 7-1 for the list of the cantonal functions for which there are equalizing contributions of the communes; chapter 7, section 7.3 pp. 175ss describes the estimation method of the equalizing effects for each system A to E2 in Table 2.

[5] In practice (see Dafflon and al., 2004) it was necessary to scrutinize the 57 monetary flows between the canton and the communes, bottom-up and top-down, to find that 31 of them contain an equalizing component (see Table 1). Then analysing the various laws and equalization formulas, we observed that they could be grouped in six categories, A to E2 in Table 2 to facilitate the estimation of the equalizing effects on the individual communes (total, per capita and in proportion to their potential tax capacity). Then the analysis was extended to a time series of 15 years (1988 to 2002) then up-dated to 2003 to 2007 to observe possible changes in the equalization formulas. Since there seemed to be no logic in the distribution of the communal contributions to cantonal expenditures from the equalization point of view, we eventually referred to the minutes of the Parliamentary sessions which decided the law. This confirmed that, for each specific function equalisation had never been an issue itself, coordinated with previous formulas, but was taken as a by-product for distributing the costs while respecting some global concern for territorial equity. The more recent formulas E1 and E2 – which mainly address individual social aid - do not even refer to this concern: "global" territorial equity was disregarded for district boundaries, with the result that elected MPs coming from the rural districts could obtain that the communes in the most populated urban district (Sarine) support the main burden of the cantonal policy.

Table 3 Systems of equalization and total transfers per system, 2007

System of equalization				Number of cantonal functional expenditures	Total 2007 in CH francs
Equalization formula	Proportion of the contribution distributed on the base of population	Proportion of the contribution distributed on the base of population weighted by the equalization component	Equalization component		
A	50%	50%	Inverse of classification	11	97'765'449
A	0%	100%		1	1'498'422
B	30%	70%		7	111'179'190
C	0%	100%	Global index of financial capacity	4 (3 in 2007)	6'134'113
D	50%	50%		3	23'346'396
E2	50%	50%	Global index of financial capacity, but calculation by district	2	991'591
E1	50%	50%		Grant-in-aids paid to the communes, for 4 mandated functions	14'796'815
The total amount corresponds to the sum of 14'796'815 + 240'915'161 in Table 1					255'711'976

Source: for a description of the system A to E2, see Dafflon et al., 2004, chapter 7; the equalization formulas are analysed in Dafflon and Michler, 2007, chapter 7.

System A: 50% population in the communes, 50% population weighted inversely to the classification of the commune, that is x 6 to x 1 for class 1 (the group of commune with the highest financial capacity indices) to class 6 (lowest indices).
System B: 30% population in the communes, 70% population weighted inversely to the classification of the commune that is x 6 to x 1 for class 1 to 6.
System C: 100% population weighted by the commune's index of financial capacity.
System D: 50% population and 50% population weighted by the commune's index of financial capacity
System E2: the same as D, but the calculation is per district (the 168 communes are distributed in 7 administrative districts)
System E1: grants-in-aid paid by the canton to the communes. Equivalent to system E2.

2.2 Reasons for the reform

Dissatisfaction with the present system, voiced by the communes, really started with the abandon of the reform in 1991. Besides its administrative and design complexity, the 2004 Report on the existing system (Dafflon et al., 2004) groups the criticisms in five categories: [1] measurement of the financial capacity of the communes; [2] the classification of the communes into six classes and the weight attached to them; [3] the system of indirect equalization; [4] the unity of the capacity formula; [5] the poor performance in terms of equalizing effects. [6] One may add that the domino effect of the federal RPT reform, started in 2008, has also exacerbated the failure and limits of the present system. All these discussions were founded on economic or other arguments than expenditure needs equalisation. The consequences of these changes on the equalisation policy are "by-products" to be supported ex post.

[1] The first category of questions pertains to the criteria which are used for estimating the financial capacity of the communes and the weight given to them. Dafflon and Tóth (2003) found four analytical shortcomings.

- First, the tax capacity in any RTS is estimated upon the basis of a limited range of four taxes (on individual income and wealth, corporate profit and capital). The key question is whether the selection of taxes featuring in the RTS of the Canton Fribourg is appropriate or not. Other regular tax resources were disregarded without explanation.
- Second, the choice of the "ingredients" of a needs indicator relies heavily on the actual definition of communal needs and public service costs. In the Canton Fribourg, the result is a set of partial indices which, however, cross-cut each other. The population density index clearly favours the scarcely populated communes against densely populated ones. But the economic activity indicator favours the densely populated and economically active communes against the scarcely populated ones and, by doing so contraries the former.
- Third, two components of the financial needs indicator (the population density index and the economic activity index) use *cube root* variables, There is no palpable economic argument for this technique (any root factor could do the job!).The currently applied method looks more like the outcome of political bargaining between the stakeholders, based on the expected financial results.
- Fourth, the pertinence of the weighting itself (revenue 2/3, needs 1/3 with three criteria weighted 1/9 each) is questioned because it does not result from the relative revenue potentialities and expenditure needs but from a political arbitrage in 1974. Over the years, the needs criteria lost its pertinence: with the addition of communal contributions to cantonal expenditure, the system aimed at obtaining as much as possible from "high-revenue-capacity" communes, and ignored "higher-than-average" needs.

[2] The classification of the communes in six classes according to their financial capacity creates unacceptable threshold effects: if the capacity index of a commune increases so that the commune passes into a higher class, the increased contribution is not commensurate to the change in the index, neither to the change in its tax potential nor to its needs. For example, from class 6 to class 5, the weight goes from 1 to 2, which simply double the communal contributions (whereas its tax potential certainly did not double!). For this reason, in the late 1990s, the indices of financial capacity have been used directly in new equalization formulas (Table 3, systems C and D above), thus ignoring the 1989 law!

[3] Indirect equalization is the third and probably the most important criticism addressed to the present system. Equalization is not a self-

supported policy with explicitly enounced target (this would be called "direct"), but it is implemented through equalizing supplementary payments to the "normal" contribution of the communes to the twenty-seven selected cantonal functional expenditures (see Table 2). It means that equalization is fluctuating not only to the extent of changes in the re-assignment of functions between the canton and the communes, but also between the federal State and the cantons. There are two possible situations.

First, the re-assignment of functions between government layers is dictated by economic logic:
- the new technical dimension of the production function: for example, the hospital network has been "cantonalised" in 2007 to gain economies of scale, but also for better coordination and complementarities between the hospital units;
- minimum standards requirement from the electorate: for example, in pre-primary education and kindergarten, because the increasing parental mobility for professional reasons between communes and cantons creates more and more problems of school coordination if the teaching programmes are left in the hands of local government and present important differences from one place to the other.

The second scenario, also frequent, is the common pool problem. Any attempt to re-organised a function at the cantonal level for reason of economic efficiency and fiscal accountability is blocked with the pretext that it would destroy the "delicate balanced of the actual equalization policy", a good pretext for political status quo. A good example is the distribution of the costs of salaries and related expenses in primary education. The communal contributions to the common pool are calculated on the population figures for 30% and the population weighted by the class inverse for 70% (system B in Table 3). With a diminishing number of school-age children, there is no incentive for a commune to re-adapt the school district boundaries or to amalgamate with neighbouring schools: economies of scale would be diluted in the common pool and the communes would have no monetary reward from their own efforts: the contribution formula does not include the criteria of origin or causality. Yet, since an important proportion of equalization comes from the system B (Table 3), any attempt to change is stopped with this argument. Transferring the equalization policy into direct equalization, distinct from any effective functions, would wash out this argument.

[4] A fourth argument is the unity of the capacity formula: it combines at the same time revenue equalization and expenditure needs equalization, as it was the technical mode in the 1970-1980s. At that time, the argument was that with the constraint of a balanced current budget, revenues

(taxation) and expenditures will progress in parallel. Thirty years of experience have proved this not to be the case. The tax equipment of local government has had buoyancy and a rate of growth which has not developed parallel to the evolution of local public expenditure. Owing to tax competition between the cantons, Fribourg modified several time in the past both the direct tax rate schedules and the tax base (especially the amounts of tax expenditures), with top-down tax externalities supported by the communes. Communes have also re-arranged their tax system, either by adapting their tax surcharges to cantonal taxes or through adopting a new "direct taxes – user charges" mix. The expenditures growth has followed its own path, much divergent from tax yields. First, progress in the production productivity of the local public sector was slow, mainly because public services at the local level are labour intensive (education, police, proximity health, medical care at home, aid for elderly people, social aid are the main local services). Second, the re-assignment of function between the federal State and the cantons has domino-effect on the distribution of responsibilities at the cantonal-local level. Third, the canton itself has initiated a similar process of reorganising certain functions between the canton and the communes (cantonalisation of the hospital network; obligation for the commune to open a second year in kindergarten; abandon of the communal contributions to the canton's share to the national social security schemes and to the illness insurance; but increased financial engagement in institutions for disabled persons, etc).

To sum up, the political economy of equalisation is nowadays faced with four situations:

Box 4 **Possible budget situation before equalization**		Tax potential	
		low	high
Expenditure needs	high	1	2
	low	3	4

A unique financial capacity formula, combining tax potential and expenditure needs as it is today the case, cannot answer the four problems (see figure 18 below). Therefore the opportunity to separate revenue equalization formula from expenditure needs formula must be scrutinized.

[5] The fifth argument in the list was the poor performance in terms of equalizing effects. For almost 241 millions CH francs of vertical transfers with an equalization component, the estimated equalizing effect is less than 10 percent (see Table 1 for 2007; but this has been the score for all the estimated years, 2001-2003 in Dafflon and al., 2004 and 2004-2007 in

Dafflon and Mischler, 2007). This poor performance is explained by the fact that, as said above, in indirect equalization co-financing cantonal functions, efficiency consideration, cantonalisation for reasons of coordination, equal access, new production functions, are at the origin of the vertical relation, NOT equalization which is the by-product. Direct equalization could reach a somewhat equivalent performance at a much lower cost.

[6] An important re-assignment of functions also intervened in 2008 between the federal government and the cantons (Dafflon, 2004) with large domino effects on the fiscal relation between the cantons and their communes. When the cantons have to contribute to financing certain federal functional expenditures, especially in the federal social policy, it was frequent that in turn, the canton would redistribute part of the burden on the local layer – with the "historical" argument that without the federal social policy, social aid would totally fall on the communes' shoulders. In theses cases, a change in the federal-cantonal contribution formula would affect the cantonal-communal financial relations.

Before introducing the reader to the new system, Box 5 gives a comparative overview of the actual (2010 last year) system and the new schemes for revenue equalisation and expenditure needs equalisation, in the following sections.

Box 5 Comparison between the Actual and the New Equalisation Schemes

Actual	New (FR Law 16.11.2009 on inter-communal fiscal equalisation	
No explicit objective: "render fiscal disparities politically acceptable"	Resource equalisation: compensate partly disparities in the tax potential of communes (Law art. Needs equalisation: compensate partly the expenditure needs differences of the communes based on synthetic indices of needs	
	Constraints: 1. Only a reform of the system, not an extension to other domains of local competencies as in the actual equalisation 2. Zero-budget increment	
One global scheme (?)	Separation of revenue equalisation and expenditure needs equalization	
Indices of Financial Capacity mixing explicative variables; On the basis of the indices, distribution in 6 classes: 3 above average classes ("rich") 3 below average classes ("poor") average: 100 points	**Revenue equalisation** Indices of Tax Potential (RTS) Eight main communal taxes: 1. Personal income and 2. wealth 3. Corporate profit and 4. capital 5. Immovable property 6. At source on wages 7. Capital gains 8. Shares of motor vehicle tax	**Expenditure Needs Equalisation** Synthetic Indices of Needs (SIN) Five functions: 1. police, justice and order 2. compulsory education 3. care for elderly people 4. individual social aid 5. roads and public transportation Five explicative variables: a) population density (ln) b) ratio of work places to population (ln) c) population growth over 10 years (1/2) d) ratio of population aged over 80 to population e) ratio of children aged 4-14 to population
Weighting: 2/3 for resource variables 1/3 for expenditure variables	Weighting: The relative yield potential of each tax in the total of the 8 taxes Global = for the 168 communes Three years average	Weighting: The relative proportion of each of the 5 functions in the total of the 5 functions Global = 168 communes Three years average
Indirect Equalising supplements to top-down and bottom-up financial transfers which have other objectives	Direct Block grants No earmarking	

(incentive, economies of scales, territorial externalities, cost sharing, mandated functions)		
Vertical in design Horizontal in effect since "close-ended"	Horizontal	Vertical
Labyrinth world: 20 cantonal grants-in-aid to communes of which 4 have an equalising supplement; 37 communes' contributions to cantonal functions of which 27 have an equalizing supplement) 6 categories of equalization formulas (5 for the 27 contributions and 1 for the 4 grants)	1 scheme 2 formulas (contributing communes if ITP > 100 and beneficiary communes if ITP < 100)	1 scheme 1 formula (continuous scaling)

3 The political economy of the new equalization

Owing to the structural deficiencies inherent to the actual equalization policy and instruments, the Task Force in charge of the reform decided or approved on proposition of the experts the following guidelines and set of rules.

3.1 The rationale for equalization

Box 5 reviews the possible origins of fiscal disparities in the relevant literature.[6] The logic behind this classification in five categories is twofold.

RULE 1: "External" items that are outside the scope of local decision should be compensated, at least partly, if they result in a significant spread in the relative fiscal position of governmental units.

RULE 2: Those items that are within the scope of decision and the fiscal management of sub-national governments (SNG) should not be taken into consideration for equalization. They belong to the sphere of local autonomy and responsibility.

The origins of disparities outside the command of communes can thus be distributed in two categories: revenue equalization for A, and "expenditure needs / costs" equalization for B and C. This distinction is the more palatable that it proposes a practical answer to the previously enounced [4]th reason for the reform. Since the growth paths of expenditures and tax resources diverged through time, and owing to the emergence of situation 4 in Box 6, the Task Force recommended (GUIDELINE 1) to proceed separately, though in coordination, for the twin equalization objectives.

[6] For a commented review of the literature on this, see Dafflon, 2007, 363-366.

Box 6 Five sources of fiscal differences across sub national governments and their appropriateness for equalization

Appropriate for equalization - disparities	
A	Differences in the territorial distribution of revenue bases (taxes, natural resource royalties…) or access to them usually measured per head. This can result from differences in endowments (land, minerals…) location (access to sea or trade routes…) or constitutional/legal constraints (some tax bases off limits).
B	Need differences in the number of units of standardized service required per capita owing to demographic reasons (age structure, migrant / non migrant structure) and territorial (length of shoreline or border to be patrolled).
C	Cost differences per unit of standardized public service that arise from factors such as: differences in the quantity and composition of inputs that are necessary for producing the public service, differences in factor or input prices, differences in physical characteristics (environmental factors) and presence or absence of economies of scale in the service provision).
Not appropriate for equalization -differences	
D	Differences in local preferences either for optional services, for quantities or quality above the minimum standard level in the provision of services; or for autonomy that hinders the achievement of optimal size.
E	Differentials that are attributable to strategic behaviour on the part of the SNGs with respect to federal transfer payments; local preferences between (non-benefit) taxes and user charges (benefit taxes), including the choice – if any – among different forms of taxes

Source: adapted from Dafflon and Mischler, 2008: 215

3.2 Technical rules

Equalization should be direct, unconditional and founded on sound statistical data. What do these qualifications mean in practice? Though they look like technical rules at first glance, each of them derives from economic policy considerations that were thoroughly debated by the Task Force.[7]

[7] From November 2004 to February 2007, the Task Force met twenty-two times for a whole afternoon, debating all the relevant issues from the critical analysis of the present system to several scenarios for the project. It worked on the basis of technical documents and economic analyses presented by the experts. The detailed documents and reports, together with the decisions and proposals of the Task Force are published in Dafflon and Michler, 2007. Since proceeding with the economic analyses required intermediate political decisions and orientations (which sort of territorial solidarity and how much are in priority ethical and normative value judgements), the Task Force orientations are always reported in distinct boxes in the document.

3.2.1 Direct Equalization

RULE 3: It is understood that revenue and expenditure needs equalization should be implemented directly through financing two annual equalization funds, which would then be distributed on formula-based instruments, and not indirectly as monetary supplement or reduction to communal contributions or cantonal grants-in-aid.[8] This would mean also that the actual 31 equalizing flows distributed in six equalization formulas would be replaced by two systems running parallel and in structural coordination. At this stage, there was no decision about the vertical or horizontal funding; but it was soon clear that funds will not be accumulated, but annually totally redistributed.

The political economy logic behind this rule is also that abandoning indirect equalisation will facilitate new parliamentary debates about the vertical re-assignment of functions and enhance efficient and neutral cost sharing formulas. This corresponds to the Tinbergen policy rule "one objective - one instrument", with equalization on one side, distinct from the debate about responsibilities and costs sharing on the other side.

Also, indirect fiscal equalisation is likely to exacerbate the disparities among local communities. Under such a system the canton provides specific grants with two components: a basic rate that takes into account incentive or any other technical measures of allocation (based on costs, economies of scale, spill-over benefits etc.), and an additional equalising component that depends on the fiscal capacity of the commune. The recipient commune can therefore benefit from the cantonal equalisation policy only insofar as it has the capacity to finance the residual expenditure not covered by the grant. Although the equalising component enhances the total rate of the grant, communes with low fiscal capacity can seldom afford to provide the residual funding for the granted project, for which reason they are practically excluded from the equalisation benefits. It is a vicious circle

3.2.2 Unconditional monetary transfers

RULE 4: In order to fully respect local autonomy – in the sense recommended by the European Charter of Local Autonomy (1985), equalization payments will not be earmarked for any function and use. Local governments shall be totally free in their use, be it for additional provision of local public services, better quality for mandated functions or reductions in the tax burden.

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[8] This is a much simplified statement about direct versus indirect equalization. A more elaborate approach is available in Dafflon and Tóth, 2003.

The economic argument is that money transfers for equalization should have an income effect, but no substitution effect in that they should not induce beneficiary communes to re-orient their choices. Unconditional transfer payments are accepted as neutral from an allocative point of view.

3.2.3 Quality of statistical data

RULE 5: The basic requirement about quality is that the equalization method to classify the communes according to resources or expenditure needs disparities must be based on unambiguous statistics. Unambiguous was qualified in the following way:

- officially compiled and published by a neutral administrative body (not dependant from any line ministry) and controlled for coherence;
- regularly up-dated (once-for-all statistical data are useless in the sense that equalization requires to measure the timely evolution in the relative position of the communes, not static absolute values);
- insensible to communal strategies and immune from political manipulation and black-box processes;
- verifiable by all stakeholders.

The political economy argument is that the new system be organised in such a manner that territorial solidarity should be fully debated among stakeholders and decided in Parliament, without unduly noise and interferences in the implementation thereafter.

Three additional guidelines were enounced:

GUIDELINE 2: It is not the primary purpose to increase equalization compared to the actual equalizing effects. The new method should significantly increase the performance through better design and formulas, not through increasing the amount at disposal: a proportion of 9% equalizing effect to total monetary transfers with an equalisation component as in the present system is such a poor score that it is no longer acceptable.

GUIDELINE 3: Territorial solidarity is a shared responsibility of communes and the canton. In this respect, equalization should be horizontal and vertical – but with clear delineation between the reciprocal role of the government layers.

GUIDELINE 4: The shortcomings of the actual system must not be repeated. Lessons must be learned. The aim of the reform is to obtain a flexible and different system, which would be easily readable by local politicians and members of the cantonal parliament, adaptable to evolving circumstances. Information costs should be low. Performance must be measurable and regularly measured.

4 Revenue equalization

Four issues need to be addressed in revenue equalization (Dafflon and Vaillancourt, 2003)[9]:

1] Jurisdictions must be ranked according to some indicator of entitlement to equalization. In the described experiment, this indicator for each commune is called "index of tax potential".
2] The level of public revenue available to be shared in the equalization scheme.
3] The equalization formula.
4] Does equalization need additional limits?

4.1 The communal indices of tax potential (ITP)

In revenue equalization, the ranking of sub-national government units (SNGs) is nowadays usually made according to a Representative Tax System. RTS measures how much tax revenue each SNG unit would obtain, applying the same set of taxes at identical rates across the SNGs. The core issues here are (Dafflon, 2007: 380-388):

- which taxes are taken into consideration,
- how to weight each of them to calculate the indices of tax potential (ITP) for each SNG unit, and
- who decided the taxes and the weights?

In the 2009 Reform of the Local Equalization system in the canton of Fribourg, RTS is founded on eight taxes: (1) on personal income; (2) personal wealth; (3) corporate profits; (4) corporate capital; (5) immovable properties; (6) on capital gains; (7) at source (foreign earnings); (8) motor vehicles. These eight tax sources (Table 7) represent around 90% of local tax yields.

The calculation respects the following sequence:

i) The theoretical tax yield is calculated with the same tax coefficients for all communes, that is 100% of the same cantonal tax for (1) to (4), (6) and (7); 3%o of the fiscal values for (5); the proportional communal shares (42,9%) for (7) and (30%) for (8) on the principle of origin. It is called tax potential.
ii) The calculation is made for three reference years (normally tax statistical data are available with a two years time lag; that is in August 2010, the 2008 data will be published.

[9] The theoretical background of this section is developed in Dafflon, 2007. The new equalization policy in the canton of Fribourg is an "experiment" in that its design follows scrupulously the proposals issued from the political economy of equalization, with the political priorities given in its sequential development phases.

iii) Since communes are different in terms of population size, their measurement must take into account their population number. Calculations are per capita.
iv) The eight series of per capita tax potential serve to construct eight series of indices, with the average equal to 100 points.
v) The series are consolidated in one global ITP for each local jurisdiction. The individual series are weighted according to their relative importance in the total tax potential - relative for the total of the 168 communes, not per individual commune (Table 7, column 9).

Three communal taxes are not taken into consideration: on gifts and inheritance, on the transaction of immovable property and on the gains issued from those transactions. The main reason is that tax yields from these three taxes are too irregular, especially in small communes, despite a calculation on tax potential and three years average. If considered, the ITP would have suffered from a certain volatility at the margin, which was rejected the easier that the proportion of the yields in the total is not important.

This method offers two advantages. First, since the proportions for each tax are calculated on the basis of the aggregate yield for *N* local governments, it provides a kind of individual insurance for local governments susceptible to abrupt changes in their situation: the change in any local government's series will not be given a weight higher than the average. Second, with the average index value at 100, the system includes any changes in tax yield during the reference period, automatically smoothing irregular yields in individual local governments and integrating the growth rate of the various tax yields in the annual calculation. Therefore, the position of any individual local government is relative not only in terms of its resident population but also in terms of the various rates of growth that affect their own tax sources. The procedure combines the redistributive function of equalization while allowing it to fulfil a stabilization role.

Table 7 Tax Potential per tax category, 2005-2007, in CH francs

1	2	3	4	5	6	7	8	9
Tax category	**2005**	**In %**	**2006**	**In %**	**2007**	**In %**	**Σ for 3 years**	**Weight in %**
Personal Wealth	62'521'270	0.07	67'539'271	0.08	71'158'327	0.08	201'218'868	0.08
Income	570'721'852	0.67	578'476'325	0.65	608'115'258	0.64	1'757'313'435	0.66
Corporate capital	16'269'988	0.02	16'851'972	0.02	19'833'669	0.02	52'955'630	0.02
Corporate profits	63'996'230	0.07	75'844'304	0.09	92'038'528	0.10	231'879'063	0.09
At source	15'405'077	0.02	15'740'519	0.02	17'159'515	0.02	48'305'111	0.02
Immovable property	91'125'839	0.11	93'525'158	0.11	97'229'679	0.10	281'880'675	0.11
Capital gain	12'580'159	0.01	13'814'803	0.02	15'368'429	0.02	41'763'391	0.02
Motor vehicle	21'095'918	0.02	22'361'449	0.03	22'841'261	0.02	66'298'628	0.02
Total	853'716'334	1.00	884'153'801	1.00	943'744'666	1.00	2'681'614'801	1.00

Source: Canton de Fribourg, Service cantonal des contributions

The calculation of the ITP does not contain the communal tax coefficients as variables. To be more accurate, the formula automatically reckons with a tax coefficient of 1.0, as if every local government levies local taxes corresponding in size to 100 % of the canton's taxes. The economic logic of this method is to avoid the distortion that could possibly derive from the existing tax competition between the communes. If local coefficients were taken into consideration, then the equalisation policy would favour the communes applying lower coefficients with apparently low tax yield against those that have opted for higher coefficients. Given the current "race to the bottom" of local tax rates in Switzerland, too many communes would appear to have a low capacity, which would raise the overall demand for equalisation transfers. In fact, a great number of communes tend to decrease the share of direct tax revenues in the local budget by reducing their tax coefficient, and simultaneously they introduce user charges to make up for the lost tax revenue. Since user charges do not appear in the formula of local fiscal resources, communes refraining from this source of revenue would suffer a negative discrimination by the allocation of equalisation grants. Starting out from a communal tax level generalised at 100 % of the cantonal taxes helps to ensure the neutrality and the comparability of fiscal resources potential among the communes. It is the essence of RTS.

The Expert and the Task Force proposed the eight selected taxes and the weighting method. Both the cantonal Executive and Parliament endorsed this choice. From the theoretical point of view, the method is a straightforward implementation of RTS. The results are summarized in Table 8. Annexure III gives the detail calculation.

Table 8 Ranking of communes according to their ITP (reference years 2005-2007)

34 contributing communes IPF > 100		134 beneficiary communes IPF < 100	
IPF	communes	communes	IPF
180 and more	5	19	90 – 99,99
160 – 179,99	3	38	80 – 89,99
140 – 159,99	4	41	70 – 79,99
120 – 139,99	5	29	60 – 69,99
100 – 119,99	17	7	50 – 59,99
		0	less than 49,99

Source: own calculation from the cantonal Executive's Message, 2009: 22-27, up-dated for 2005-2007 Service des communes du canton de Fribourg

4.2 How much revenue equalisation?

In RTS, SNGs' indices of tax potentials allow to calculate what would be the necessary fund for equalization if all SNG with an index below average would receive an amount such that the per capita tax yield would be at least equal to the average tax yield for the selected taxes. The simplest formula would be for commune "i": *[(average per capita potential tax yield for the selected taxes – per capita potential tax yield of commune "I") x population of commune "I"] = equalizing amount to be received per commune "i".*

But should a revenue equalization scheme compensate for the exact per capita tax potential difference to the average? This objective would certainly create incentive problems and strategic behaviours (Smart, 2007: 211ss). Why should SNGs strive to increase their tax bases through their own efforts if equalization automatically makes up for the difference between their result and the national average? Incentive problems are crucial is this matter: equalization should neither discourage local development policies, nor slow down movement toward the territorial reorganisation of the communes (amalgamation of communes for better efficacy, horizontal cooperation to gain economies of scales, etc). There is no once-for-all theoretical answer to this incentive problem. How much is too much depends on the national context in which equalization is implemented. It can only be said a priori that moderation is the basic virtue; thereafter, it is learning by doing. Vertical versus horizontal revenue equalization as mean of moderation is also debated but does not itself provide a robust and definite answer.

In the new Swiss equalization scheme between the cantons, introduced in 2008, it was debated whether cantons with lower-than-average indices of tax potential should received an amount of equalization such that their own taxes + the after equalization tax share would reach at least 85

percent of the national average (Dafflon, 2004). This threshold was abandoned due to the excessive funding it would require. Also the German case revealed genuine disincentive problems with this sort of target.

Thus the question arises of what are the relevant objectives to judge the performance of the system? In the actual Swiss scheme, there is no mention of a preset quantitative target. The performance is measured in comparing the pre- and after equalization distribution of tax resources. It results in a political ex post appreciation of what is politically acceptable or not. The answers are ambiguous: what is "politically acceptable": (a) the relative reduction of disparities resulting from equalization, or (b) the absolute inter cantonal fiscal disparities remaining after equalization? Since the evaluation will take place every four years, the first time in 2012 at the federal level, no answer is yet delivered!

In the 2009 Reform in Fribourg, the amount of equalization is fixed in the law at 2.5% of the tax yield potential of the eight relevant taxes. The Task Forced based its proposal on the argument that the equalising effects of the new equalisation policy do not need to be increased, at least in a first step: what is urgent is the reform of a system which is deemed obsolete and inequitable. Thus, its proposal was to refer to the average amount of the equalizing effect of the last three years as estimated by the experts. Annexure 1 gives the relevant details. In order to avoid recurrent political debate or contradiction on the future annual funding, the Task Force equally accepted the expert's proposal that this amount should be expressed in the law in proportion of the total tax potential represented by the eight selected taxes. At the moment, the figure is 2.5 per cent.

4.3 The equalization formula

The third issue is the equalization formula. It is evident that if the answer to the previous issue is that communes with ITP below average [$ITP_i > 100$ points] should receive the total difference in their potential tax endowment, or a fixed target (such as the disregarded 85%), then there is no need for a complicate mathematical formula. The simple per capita difference in the communes' individual tax potential to the target, multiplied per the population number of the commune, would suffice. But, as we wrote considering the incentive problem, there are only very few practical examples with such fixed target. Most RTS start the other way round: with a given amount at disposal, how do we proceed to partially correct the tax disparities. Any equalization formula would have to give more to “poor” jurisdictions than they would receive following the origin principle and “rich” jurisdictions would receive less, something along the CEF line. In horizontal equalization, "rich" jurisdiction would have to contribute, "poor" would benefit. The equalizing performance is measured

in comparing the "before" and "after" situations. Various formulas have been developed for revenue equalization (proportional, progressive, natural log, exponential – Dafflon and Mischler, 2008: 113). The problem is not simply the econometrics of equalization but how much solidarity there should be. This is first and foremost a political issue.

In the 2009 Reform in Fribourg, resource equalization is horizontal. Communes with ITP>100 contribute to the annual equalization budget; communes with ITP<100 benefit from equalizing annual payments.

The formulas are:

$$(1)\quad TC_i = \frac{\left(H_i \times \left[ITP_i - 100\right]^{Exp}\right)}{\sum_{i=1}^{n-m}\left(H_i \times \left[ITP_i - 100\right]^{Exp}\right)} \times M \quad \text{and} \quad (2)\quad TB_i = \frac{\left(H_i \times \left[100 - ITP_i\right]^{Exp}\right)}{\sum_{i=1}^{m}\left(H_i \times \left[100 - ITP_i\right]^{Exp}\right)} \times M$$

where

TC contribution of commune "i"
TB amount received by beneficiary commune
H resident population of commune "i"
ITP index of tax potential
M the total amount to be assigned to equalization
Exp solidarity coefficient: if Exp=1, the formula is proportional; if Exp>1, the formula becomes progressive.

With the left part of these formulas, one can see that, with an adequate amount M, the difference between a commune's tax potential and the average is to be totally paid (H_i x [ITP_i – 100]) in equation (1) or received if ITP_i <100, (H_i x [100- ITP_i]) in equation (2). Moderation comes through the available amount M decided to finance the equalization scheme. If M does not fill the total difference, then the equalizing distribution covers only a fraction of the difference and a proportion has to be chosen. Proportion is obtain in the formula with a fraction comparing the individual communes' "i" position to the added position in Σ of the contributing communes (ITP_i >100) in equation (1) or of the beneficiary communes (ITP_i < 100) in equation (2). The degree of solidarity between contributing communes and between beneficiary communes is given by the exponent Exp: the higher the exponent, the more solidarity. That is, in equation (1) with a higher K value, communes will contribute progressively more and more the "richer" they are; in equation (2), the lower a commune's ITP the more it would benefit. Technically, Exp values need not be the same in equation (1) and (2). But this would mean that the underlying concept of solidarity would not be the same for contributing or beneficiary communes.

As mentioned above, with M = 2,5% of the sum of the communes' tax potential for the eight selected taxes, the funding of revenue equalization

is far from a situation where the differences in tax potentials would be levelled out. Moreover, the Task Force proposed an exponent = 1.00, confirmed by Parliament and fixed in the law: thus the equalizing effects on the communes are linear and strictly proportional – in addition to be only partial.

The formulas also fix that revenue equalization is horizontal. In Table 8, thirty-four communes obtain ITP > 100 and one hundred thirty four communes have an ITP < 100. Financial equalization transfers will go from the 34 to the 134 communes on an annual basis. Horizontal revenue equalization is a political choice which responds to one of the constraints formulated by Parliament in 1991 (section 1.2 above). Horizontality was discussed in the Task Force and accepted from the start by the stakeholders. It has never been challenged. As we shall see, tensions between the canton and the communes came from the vertical expenditure-needs equalization, which ended in the arbitrage of the cantonal Parliament in favour of the communes.

There are at least two arguments or motives for horizontal equalization. First, it results from social cohesion between the different territorial units of the cantons. This is explained by socio-historical reasons.[10] Second, experience shows that horizontal revenue equalization mitigates the demand for M: contributing and beneficiary communes must negotiate how much equalization is possible and find an agreement. The 19 beneficiary communes positioned between ITP 90 and the 100 points

[10] Born and resident in this canton, and from 1977 to 1990, chief economist in the Ministry of Institutions in charge of supervising the communes, my own lecture of the situation can be summarized as follows. Communes in the canton of Fribourg are French and German speaking, with several official by-lingual units; with catholic or protestant majorities; rural, semi-rural, semi-urban and urban; linked to the Francophone and Latin European History, but also to the German tradition. But the diverse cleavages are crosscutting, so that nobody is always in majority or minority. In addition, most majority cleavages in the canton are in turn minorities in global Switzerland. This has resulted in somewhat a high degree of tolerance. The public finance counterpart of tolerance is solidarity; and the technical part of solidarity is fiscal equalization.
These characteristics also exist at the district level and within district for supra-communal cooperation. At the time when we started the study of the state of art, out of 87 institutions of horizontal cooperation between communes, 26 had a costs sharing formula with an equalization component (Dafflon et al. 2004: 185ss). If one disregards technical local public services (17 for water distribution, 24 for sewage and waste water treatment, and 1 solid waste management) which were financed through user charges (benefit principle), the proportion of cooperation units is quite remarkable: 26/(87-42) = 58%, knowing that the cantonal legislation never imposes equalization for cooperation at the local level. Exception to the rule, the costs sharing formulas for urgent social aid and measures of social re-insertion, implemented at the cantonal level in 2002, impose a district-based solidarity instead of canton-wide which would be the coherent issue for cantonal mandated functions. See Annexure 1, equalization systems E1 and E2.

average have no interest in asking for more for fear that a favourable future makes them pass the threshold.

4.4 Does equalization need additional limits?

The fourth issue is whether an equalization policy would introduce further limits to the redistribution formula. First, it can be debated whether jurisdictions with just below average financial capacity should also benefit from equalization. One could argue on financial, political and equity grounds that only jurisdictions below a certain level (e.g. ITP < 85) should qualify. Financial considerations could be one argument: a 85 points threshold means smaller contributions by richer SNG units. But more crucial are political considerations; at what value does fragmentation of the nation into poor and rich jurisdictions endanger national coherence. Or, put differently how much poorer is too poor? A second related question is given by the inversed image. The resources available after applying the horizontal equalization formula are limited at M: within this budget constraint, the poorer a jurisdiction, the more it receives. But the horizontal equalizing payments can be argued to be far from giving poor jurisdictions sufficient resources, increasing the resources for the poorest SNG from (for example) 50% to 65% of the national average. Should they be increased? In the affirmative, what would be the appropriate limit? Who would pay for it (if M is the negotiated amount of horizontal equalization, then financial resources for paying up to the set limit come through a vertical equalization scheme[11]. But is 85% a proper level? Fragmentation, equity and incentives must be considered. Solidarity is foremost a political issue. The design of equalization follows and it can be made coherent within political decisions – the inverse is true, the design may unveil incoherence in political decision, which have to be redressed. If the assessment of tax disparities and the design of equalization are correctly operated, there should be no need for further limits.

Box 9 concludes this section in delineating the respective roles of stakeholders (communes and canton) and elected politicians at the cantonal level on the one side, and the role of the external expert(s).

[11] Which may well be paid for by residents of SNGs already contributing to horizontal equalization if central and SNG tax capacity are correlated - on individual income and corporate profit in the Swiss case.

Box 9 Who decides what in revenue equalization

Inter-communal solidarity		***Revenue equalization***
Stakeholders and politicians		***Role of Economists***
1. Which taxes are taken into consideration for the calculation of ITPs 2. K the exponent in the equalizing formula 3. M the funding 4. Possible additional limits or thresholds 5. validate the performance as politically acceptable 6. periodically request for performance assessment		*1.examine the nature of the taxes (regular, structural, etc)* *2. propose formulas and simulate the results in a neutral way (for example for M = 10 millions CH francs)* *3. examine the coherence of political choices with the sequence of calculation* *4. examine the coherence of the proposal with the preset constraints* *5. intervene in 3 and 4 above if coherence is not respected* *6. organise the performance measurement annually and periodically* *Economist have also to help Stakeholders to consider the issues and take decision, especially in guaranteeing the coherence of the successive decisions in the sequence of policy choices.*

5 Expenditure equalization

Five issues should be addressed in expenditure needs equalization (Dafflon and Vaillancourt, 2009):

1] The expenditures carried out by SNGs that are potential candidates for needs / costs equalization;
2] The ranking of SNGs in terms of needs / costs for expenditure equalization;
3] The equalization formula.
4] Funding equalization
5] The necessity of complements or further limits.

5.1 Delimitation of expenditure equalization

The focus of this section is on expenditure equalization, a combination of items B and C in Box 6. Local needs vary according to the particular preferences of the local residents; but they also depend heavily on geographic, demographic, socio-economic and other factors. They are further determined by legal regulations concerning mandatory public goods and services that local governments must provide by all means. The first problems in line are:

- Which expenditures carried out by SNGs are potential candidates for needs / costs equalization?
- Where to draw the line between local preferences and mandatory local public services?

There has to be a political consensus about the local functions that are subject of any equalization effort. The notions of expenditure / needs / costs (?) disparities are not sufficiently clear-cut to enable a listing of the areas where the related assessment should apply and to tell whether there is a rationale for equalization transfers at all. This requirement applies either for minimum standards or for needs and cost measures. As Boex and Martinez-Vazquez (2007: 293) put it, without a clear demarcation line separating specific standards of services from an overall envelope of expenditures, perceptions of what may be a need can easily escalate to completely unaffordable expenditure levels.

From this perspective, any policy of expenditure-based equalization is a tremendous challenge. Since expenditure equalization is complex and cannot be separated from political value judgments, should we conclude that one should renounce, as in Canada[12] (Groupe d'experts, 2006: 46; Boothe and Vaillancourt, 2006: 48)? Or should we try to design expenditure equalization as best as we can with imperfect knowledge, information and data (Boex and Martinez-Vazquez, 2007: 291; Reschovsky, 2007)? The following sections sketch a possible answer.

In the 2009 Reform in Fribourg, the local functions considered are:
(1) Justice, police, security and public order,
(2) Compulsory school and special school services,
(3) Care and residential facilities for elderly people,
(4) Social aid,
(5) Local roads and public transport.

The list was established by the Task Force. It corresponds to the domain where the actual indirect equalization scheme is present, except for a slightly extended function (1) (see Annexure 1 for the enumeration of these functions). At this point of time, all functions are mandated functions: that is functions that are jointly performed by the canton and the communes, with precise explicit attribution of competences within each function. Provision must respect qualitative and quantitative standards fixed in the cantonal specific laws. To our appreciation, and with knowledge of few local exceptions, communes do provide the standards but no more. The argument behind this choice is that the new system must

[12] "Expenditure needs should only take into account differences that are not under the control of provincial governments". However, "this is very hard to establish with precision and can vary from province to province": a difficulty that led the Canadian "Expert Panel" to abandon expenditure needs equalization (Boothe and Vaillancourt, 2006: 48).

increase the efficacy of the scheme but, at least in a first stage, should not extend it beyond the existing mandated local functions.

5.2 Ranking communes for expenditure equalization

To answer the second question recall that as noted by Bird and Vaillancourt (2007) average *per capita* expenditure differences in providing a public service reflect two factors: need differences (B in Box 6) and cost differences (C in Box 6).

Need differences are differences in the number of units of standardized service required per capita. They usually arise owing to demographic reasons such as the age structure of the population and different participation rates in social programs by persons of different ages.

Cost differences are differences in the cost per unit of a 'standardized' public service. They may arise from climatic or geographic features, density or distance factors, or differences in labour cost across regions. Costs should be calculated using real (not nominal) private sector wages for equivalent inputs and not on the basis of public sector wages which may reflect such political factors as the government's political philosophy or the relative strength of workers unions (Courchene, 1998; Rechovsky, 2007: 400-409).

The practical implementation of needs equalization is a delicate issue. Needs assessment should not be manipulable by SNGs and should be neutral with regard to other reforms such as the territorial reorganisation of SNGs or a re-assignment of functions between the local and regional levels of government. The selection of needs variables must not alter the incentives for SNGs to improve their management and performance in public service provisions. In the economic literature, the methods of needs assessment have been regarded alternatively as an instrument for the evaluation of the fiscal stress of local governments or as a policy means in fiscal equalization schemes (Ladd, 1994; 1999: 124). The former is one among many purely descriptive means to classify municipalities according to specific attributes or disability factors while the latter influences the direction and the amount of intergovernmental transfers. Mischler (2009: 76) distinguishes between four methods of needs assessment, distributed in two groups.[13] (i) The first group makes use of the actual local expenditures. Using Ladd's terminology (1994: 29), it is subdivided into the regression-based cost approach (RCA) and the representative expenditure system (RES). (ii) In the second group, the ad hoc variables approach and

[13] In his survey of the literature, Mischler's comprehensive survey also compares the practice, the pros and cons, the technical difficulties of each method (2009: 76-102).

the statistical aggregation of variables do not make use of actual local expenditure data.

The methods of needs assessment produce varying results and cannot be easily compared. Each method requires critical assumptions about the relevant needs variables. Selection, availability, weighting, smoothing etc. may be difficult on purely technical grounds. The assessment is essentially driven by the needs variables. It is thus important to distinguish between technical difficulties and step-by-step economic policy choices in the process of organising equalization. The economic policy choices must be jointly discussed by partners (canton and communes), explicitly publicized and not simply fixed by an expert panel in black-box formulas.

5.2.1 Using the ad-hoc variables method

The Reform in Fribourg uses the ad hoc variables approach. This approach links needs directly to particular community characteristics. That is: the logic sequence of this method is first to select the functions for which equalization will apply, and second decide the standards of provision. Then what is basically needed is a plausible relation, in terms of political economy and public finance, between the explicative variable and the standardised functional expenditure need under scrutiny. The most common example is the assumption that per capita needs are identically distributed. Resident population would serve as the explicative variable. Yet population may be weighted, too, with the argument that needs are not in a linear relationship to the relevant variable. In the German equalization system, for example, expenditure needs increase more than proportionally with increasing population (Birke and Lenk, 2003).

The advantage of simplicity and intuitive understanding of this method is soon put into question when more than one variable is necessary to describe the expenditure needs. The variables have to be weighted but the method provides no criteria for such an exercise. In addition, since the ad hoc variables approach does not refer to actual local expenditures, the monetary amount of expenditure needs cannot be determined. It is only possible to determine SNGs' relative needs for the design of the equalization scheme. This leads to the open question as to how to evaluate the funding of the equalization program. These real difficulties can be overcome: the design of expenditure equalization in the Fribourg experiment proves that this is possible, can be made technically coherent from the political economy point of view and acceptable by the stakeholders. But transparency in the selection of the relevant variables is fundamental: expert judgments, independent technical evaluations or institutional design (Bramley 1990) may avoid severe incentive problems which arise when needs are purely political definitions.

5.2.2 Selection of variables

Let us consider the Fribourg experiment. Once the domains of intervention for equalization are chosen – in this case with the static option that these domains should be the same in the new scheme as they are the actual system (see section 5.1 above), the logic sequence is to search for the "best" explicative variables.

The explicative variables selected are:
(a) Density of population,
(b) The ratio of work places to population;
(c) Population growth over ten years;
(d) Ratio of population aged 80 and over to population;
(e) Ratio of school-aged children between 5 and 14 years old to population.
Two variables were scrutinized but need further exploration:
(f) Proportion of population receiving social aid to total population and amount of social aid per capita;
(g) Length of communal roads.

5.2.3 Plausible relations between ad-hoc explicative variables and selected functions

The ad-hoc plausible relations between the selected functions, in section 5.1 above and the explicative variables are given in Box 10 with the weight attached to them. Arguments are commented in detail in Dafflon and Mischler (2007: 190-196).

With (1) justice, police and public order, the argument is that communes with higher population density, with more working places (more commuters coming in every day from communes in the rural and suburban periphery to work in central communes), and with increasing population (due to immigration rather that local birth rate) are facing additional needs in the provision of these services.

In (2) compulsory education, the number of school-aged children is the obvious reason for quantifying needs. The analysis also included the number of school classes, of foreign language school children in relation to the school population, of slightly handicapped pupils who can nevertheless be integrated in normal classes - but all these variations were marginal and did not sensibly modify the result with the direct use of the ratio "school-aged children 4 to 16" to population, so that this statistic series is used for sake of simplicity in the calculation.

For function (3) care and residential facilities for elderly people, the information is given by the social statistics and the comments thereof. With the increasing life expectancy and the progress of geriatric medical care, the needs for household aid at home, medical care at home and old-

aged persons in need of residential accommodation in home for elderly people appear around eighty. This is the reason of this ratio: around 6% of the population 80 years old and above is concerned). Commune with higher that the average ratio will be considered as having special additional needs.

Box 10 Ad hoc explicative variables in relation to local functions
Weight given to the explicative variable in the calculation of the communes' SIN

Explicative variable		Functional expenditure needs to be explain					
		justice, police, security and public order,	compulsory school and special school services	care and residential facilities for elderly people	Individual social aid,	local roads and public transport	Σ
		(1)	(2)	(3)	(4)	(5)	
(a)	Population density	4.3%			12.3%	4.3%	20.9%
(b)	Ratio of work places to population	4.3%				4.3%	8.6%
(c)	Population growth over 10 years	4.3%				4.3%	8.6%
(d)	Ratio of population aged 80 and over to population			14.1%			14.1%
(e)	Ratio school-aged children to population		47.7%				47.4%
(f)	Individual with social aid to population and per capita cost				Not available		
(g)	Length of communal road					Not available	
	total	12.9%	47.7%	14.1%	12.3%	12.9%	100%

Source: Service des communes du canton de Fribourg, communal accounts for 2005, 2006 and 2007; own computation.

Statistical problems arose with functions (4) and (5). For individual social aid, the needs can be measured with the ratio of social individual cases in a commune to its total population. But since social aid to individuals, households or families can take a large variety of forms, from ad hoc or permanent advisory assistance, to budget tutorial assistance and to heavy financial engagement, it is also necessary to take into account the average cost per aid in the communes. The numeric data exist, but encounter the problem of privacy protection: with a potential situation of one single case in a small commune, one could identify the beneficiary. And this is not legally accepted. The other difficulty is the absence of knowledge on average cost per case. Of course, it is always possible to divide total social aid in a commune with the number of cases. But this would only consider financial aid, not individual social support. And no one can for the moment tell how many cases are in each category: social support or financial aid. Since the commune's expenditures for this function are consequent and will probably rise (see last line in Box 10: school expenditures come first with almost 48%, but the four other functions all run around 12-14%), it was necessary to find a provisional substitute: we used population density – with the idea that there are probably more cases in large urban communes than in rural areas, given the living modus in the different regions. This is far from satisfactory: but it is left as a reminder, with the aim that within the next four years, social statistics will improve and circumvent the actual failures.

With function (6) local road and public transportation, there are two plausible origins for needs. For local traffic and public transportation in urban and suburban areas, the arguments are the same than for function (1): population density requires more public transportation; daily commuters into the centres require regulating traffic and parking, to protect residents through pedestrian zones, etc. Explicative variables (a), (b) and (c) could express these needs. For rural areas and communes in the mountainous periphery the needs accrue with the length and the maintenance costs of their road network. There exist statistical data: but though they are official, they are controversial and for this reason not published. So keeping to the rule that data should be published, accessible and verifiable, this variable is, for the moment, left aside.

5.2.4 Transformation of the variables

Several variables used to assess SNGs disparities are not linear with regard to expenditure needs: one cannot assume that the importance and growth of SNGs' expenditures in a particular function are strictly proportional to the identified needs variable(s). They have to be transformed in a way to become useful for the methods of needs assessment. A well-known example is population density. Depending on the particular services, population density may have a positive, a negative or even a nonlinear

effect on the expenditure needs. Also the views on the use of population density have changed over time. In past equalization systems, jurisdictions with a low population density, used to approximate the geographic dispersion of the population, were supposed to have higher expenditure needs basically because of the investment costs of networks like water and sewage pipelines or roads (Dafflon and Mischler 2007: 166). Meanwhile, this network infrastructure has been established. The new problems of the local public sector have shifted towards providing equal services in health, education and welfare in densely populated areas, especially because of the concentration of population segments who cause higher public expenditures (e.g. elders, unemployed, poor people, foreign citizens, etc.). However, it is not possible to apply population density directly as a proxy of expenditure needs: in the Swiss canton of Fribourg, for example, the capital city has a population density that is 330 times higher than that of the municipality with the lowest population density; yet one cannot infer that there is a linear relationship to expenditure needs. In this case, the log-transformation assumes that, with growing population density needs increase at a decreasing rate. Annexure IV gives an example with population density.

For the same reasoning, variable (b) the ratio of work places to the resident population is transformed with natural log.

For variable (c) the exact variable is the difference between the population growth rate in the commune for the last ten years with the average growth rate of population in the 168 communes. Only half of the difference is taken into account. The argument is that population growth creates needs for additional infrastructure and equipments, and thus additional maintenance costs. But, the needs are not continuous: infrastructure development is made step by step with reserves of capacity along the way. Furthermore, part of the equipment must be financed by user-charges according to the benefit principle. These functions (water distribution, sewage and waste water treatment, solid waste treatment, etc) are not taken into consideration for equalization: any external grant or additional contribution would distort the price signal, bringing inefficiencies and the ruin of the polluter-payer principle. The estimation is that half of the communes' investments concern these functions. Thus the adjustment for variable (c) to take only half of the explicative variable into the calculation.

5.2.5 Elaborating a synthetic index of needs (SIN)

The statistical series (a) to (e) above serve to construct for each commune five series of needs indices. For each variable, three statistical years are considered in order to smooth possible extraordinary change in the position of a commune. For each series the average is given 100 points. For series (a) population density and (b) ratio of work places to resident

population, the logarithm-transformation applies. For (c) difference in the population growth rate of a commune and the average, only half of the difference is considered (Canton de Fribourg, ROF 2009 123, article 12).

With these five series of indices, a synthetic index of needs (SIN) is calculated for each commune. The series are weighted according to the relative proportion of the local public expenditures they explain, for the five functions (1) to (5) considered. Communes with $SIN_i > 100$ points have standardised "needs" higher than the average for the 168 communes; inversely for $SIN_i < 100$. Annexure V gives the details of the calculation.

5.2.6 Weighting variables

Except in a situation where there is only one need variable and one disability factor, the problem of weighting the variables arises. If needs are treated separately for each function, each with its own equalization formula, the result is that weights are de facto given through the relative proportion of equalization transfers assessed for that particular function within the total amount of expenditure needs equalization.

What if there is more than one plausible needs variable? The ad hoc variables approach faces this challenge. It is evident that even the equal weighting of the variables already requires some form of justification. Again, political priorities may be important in practice for a rough judgment with regard to the weighting. Another possibility is the weighting of the criteria according to the share of local expenditures for each task in the total related to equalization. This last method is the one decided by Parliament in the Fribourg experiment.[14] Weights for the five selected functions are calculated on a three years basis – always with the same idea to smooth annual variations. Annexure VI gives the detail calculation.

The arguments for this method are:

(1) it allows the comparison of different fields of public expenditures (e.g. primary education and social welfare) in the aggregate local budget;
(2) these proportions cannot be manipulated by individual municipalities;
(3) they will adapt continuously to the new expenditure priorities should the latter change.

[14] In the draft law, the cantonal Executive proposed to weight the variables with 1 for functions (1), (3), (4) and (5) and with 2 for (2) with the argument that it would leave more room of manoeuvre for future arrangements. What sort of arrangements was not clear. This proposal was challenged by the expert that there was no economic logic behind this series of weight and that future arrangements could be ad hoc political compromise and logrolling foreign to expenditure equalization. Confronted with the alternative, the Parliamentary Commission voted for the system founded on local public expenditures. In the plenum session, the cantonal Executive abandoned its proposal and returned to the expert's view and the Commission decision. Thus no specific vote on this issue was necessary.

However, using past real expenditures ignore the problems of local preferences, X-inefficiencies and the fact that past local expenditures may contain residual amounts of the equalization system to-be-changed. This last objection, however, fades out when indirect equalization (equalization bonus or malus attached to specific local outlays) is abandoned for a system of direct needs equalization.

The results of the SIN calculation are summarizes in Table 11.

Table 11 Ranking of communes according to their SIN (reference years 2005-2007)

78 communes with SIN > 100		90 communes with SIN < 100	
IPF	communes	communes	IPF
140 and more	1	34	95 – 99,99
120 – 139,99	3	31	90 – 94,99
110 – 119,99	16	21	80 – 89,99
105 – 109,99	19	1	70 – 79,99
100 – 104,99	39	3	60 – 69,99
		0	less than 59,99

Source: Conseil d'Etat, Message, 2009: 22-27, up-dated for 2005-2007 Service des communes du canton de Fribourg; own calculation resulting from the decision of Parliament

5.3 The equalization formula

The equalization formula is: (3) $ENE_i = \frac{H_i \times SIN_i^{EXP}}{\sum_{j=1}^{168} H_j \times SIN_j^{EXP}} \times M$ where

ENE expenditure needs equalization for commune "i";
H resident population;
SIN synthetic index of needs
EXP solidarity coefficient: if EXP=1, the formula is proportional; if EXP>1, the formula becomes progressive.
M the amount at disposal for expenditure needs equalization.

The scheme is vertical, that is M is paid by the canton only (see below, section 5.4). In the Task Force, as well as in Parliament, there was a fierce discussion to decide whether expenditure needs equalisation should be limited to communes with SIN > 100 or not. To found this proposal, the argument was that the cantonal financial aid should be concentrated where it is most needed, that is for communes with SIN_i > 100 points. Another interpretation could well be that for a given equalization target, the canton would save money with this solution! The image used in these circumstances is to affirm that with a given amount of water at disposal [M], "selective watering is more efficient that general watering" – though efficiency was not defined by the proponents. The other stance is that all

communes have expenditure needs and, within the logic of continuous scale in the measurement of needs, there is no consistence in asserting that communes with $SIN_i < 100$ have no needs. They have needs below the standardised average, but this is not equal to nothing. In addition, using the whole scale correspond to the same logic used for revenue equalization. The Task Force was divided on this issue and finally decided to enumerate the pros and cons with a small priority to the restrictive solution. The cantonal Executive followed; the expert and the majority of the parliamentary commission (6 against 5) favoured a general distribution. The Parliament decided the general distribution with 61 votes against 39 and 1 abstention (BCG, 2009: 1910-1914). But it also decided at the same time that EXP will be 4, so that, contrary to revenue equalization, expenditure needs equalization is progressive (see 6.2 below).

5.4 Funding expenditure needs equalization

Indicators expenditure needs disparities do not tell how much funds are necessary for equalization. How much solidarity is a policy normative choice. The funding of equalization may be fixed in different institutional settings: annual negotiations, multi-year agreements or even constitutionally defined. It may be the result of either a standard procedure of the legislative or the executive branch of government, a special forum where the different stakeholders can negotiate on the equalization process or an evaluation by a technocratic and independent agency. A wide range of approaches seem to work in practice in different countries around the world.

Yet, these systems should be able to provide a stable and predictable outcome of the transfer system. For the same reasons as the smoothing of the data with respect to the needs assessment, the funding should encourage stability-oriented local fiscal policies (Boadway and Hayashi, 2004). Therefore, a constitutionally fixed transfer program is preferable to annual negotiations on the funding. The system of expenditure needs equalization should be predictable for the concerned SNGs. The reasoning is the same as in the case of tax capacity equalization.

Since an undisputable benchmark for the amount of expenditure needs equalization transfers is not available under the actual existing statistical or econometric methods, the decision must be political. In the Fribourg experiment, M in equation (3) for ENE corresponds to 50 % of M in equations (1) or (2) for revenue equalization.

To conclude Box 12 distributes the roles:

Box 12 Who decides what in expenditure needs equalization

Inter-communal solidarity		***Expenditure needs equalization***
Stakeholders and politicians		***Role of Economists***
In the case study, political choices concern: - the five local functions included in ENE ; - possibly the method of estimation; - the method for weighting the five series (a) to (e) of explicative variables in the SIN; - the equalization formula (proportional) - M, the amount available for ENE.		*- analysing the pertinence of the selected functions for needs/ costs evaluation;* *- selecting the better adapted estimating method to the particular cantonal context;* *- selection of the explicative variables in relation to the selected functions;;* *- organising the weighting measurement;* *- transformation of the explicative variables if needed;* *- SIN calculation;* *- proposal for ENE equalization formulas.* *Political choices are inevitable: economic experts must simply facilitate these choices in a transparent and methodological manner by providing a policy grammar that exclude incoherent, arbitrary and ad hoc decisions. Economic efficiency in this matter is efficiency in the process, not in the result.*

5.5 Vertical versus horizontal equalizing transfers

Horizontal equalization is typically a "Robin Hood" type of equalization: high-tax potential SNG directly transfer public revenues to a fund serving low tax potential SNG. If the institutional procedure is well designed, horizontal equalization has also a moderating virtue: when SNG take part in the negotiation about M the amount of revenue equalization, the negotiated outcome will probably reach a politically acceptable balance between funding and benefit. Beneficiary SNG must inform their own efforts to enlarge the tax bases and cannot simply require more; contributing SNG will signal disincentive effects if required payments are too high.

Horizontal transfers are less conceivable for expenditure needs equalization (Dafflon, 2007: 370-371). This would imply that SNGs with relatively low needs and costs of local services accept higher tax prices which allow subsidizing other SNG with relatively high expenditure needs. Horizontal money transfers would distort the relative tax prices of local public services and result in allocative inefficiencies. Two further arguments are: (1) for those local public services that are financed through user charges, consumers will face false price signals if the local "price" does not reflect benefit (this requires a "no equalization" statute); (2) when

difference between local choices, X-inefficiencies and genuine disparities are not clear, SNG might indulge in strategic behaviour with the aim of placing themselves in a more favourable equalizing position (in this case, higher costs and more needs). Vertical needs equalization can be set on expenditure standards that eliminate functions based on the benefit principle for their financing and that ignore SNG potential strategies.

Vertical expenditure need equalisation is also justified with a second sequence of reasoning. (i) Expenditure needs must be formalized with norms and standards in order to limit the importance of M; (ii) in equalization, local choices should not interfere (section 3.1 above, rule 2); (iii) horizontal equalization would mean that SNG would have to agree to fix these norms for themselves – not an easy matter since the norms will delineate those communes which would pay or receive. (iv) If each and every commune discusses the conditions and criteria of expenditure needs equalization to obtain a cooperative solution, it means that de facto the decision is "cantonal" in its content if not in its legal form. (v) The next logical step in Nash cooperative equilibrium is to give to the cantonal authority the decision to fix the norms. And if would be logic that the canton which decides also assumes the financial consequences. Horizontal equalization is not neutral in deciding the norms, nor in the financial transfers that would change the relative tax-prices in the communes. From this perspective, vertical equalization is neutral.

In the Fribourg experiment, revenue equalization is horizontal; expenditure needs is vertical. The total amount for equalization is paid for 2/3 by the communes with ITP > 100 points in revenue equalization and for 1/3 out of the cantonal budget since [M^{ENE} in equation (3) = ½ M^{TC} in equation (1)].

This is an interesting solution if analysed from the institutional economics point of view because it established a legal link between horizontal and vertical solidarity. Without link, one of the possible future developments of equalization could have be focused on revenue equalization: the cantonal Parliament decides to increase equalization, but since it is horizontal, it can totally externalise the financial consequences on the communes. The temptation would be real to open equalization to asymmetry in the development of solidarity. This is not possible with the decided solution: if the cantonal Parliament pushed revenue equalisation, it knows that the cantonal budget will be affected directly through expenditure needs equalization for exactly half the amount. This solution has also a virtue of moderation: communes know that they cannot ask to much horizontally since expenditure needs equalization must follow and does not depend from horizontal bargaining, but from a parliamentary decision. In this way, stakeholders who have developed, supported and decided the new scheme will have to sit round the table for any future development or adjustment.

6 Performance and Acceptance Analysis

Since the new equalisation scheme will be introduced in 2011 in the canton of Fribourg, it is not possible at this stage to evaluate its effective performance. Therefore this section presents the estimated performance with the M value calculated on reference years 2005-2007. That is: M in revenue equalisation corresponds to 2.5% of the total communal tax potential that is 23.4 millions CH francs. M in expenditure needs equalisation thus corresponds to half this amount that is 11.7 millions CH francs.

6.1 Revenue Equalisation

Revenue Equalisation is horizontal. Its amount M corresponds to 2.5% of the communes' total tax potential. Communes with ITP > 100 contribute to finance equalisation; communes with ITP < 100 are beneficiaries. Since Exp=1 in equations (1) and (2), the contribution and the distribution formulas are linear. Payments are in the form of block grants, not earmarked.

Based on the ranking of the communes according to their ITP (see Table 6) and the equalisation formulas (1) and (2) in section 4.3, thirty-four communes will be contributing between 3'846 CH francs per resident in the commune with the highest ITP (553.43 points) and 20 CH francs per resident in the 34th commune with ITP > 100 points. The average payment is 192 CH francs per capita. Figure 13 below illustrates the situation.

Figure 13 **Revenue Equalization 2005-2007**
M = *23.6 millions CH francs - graph in CH francs per inhabitant*
Equalisation formula: proportional

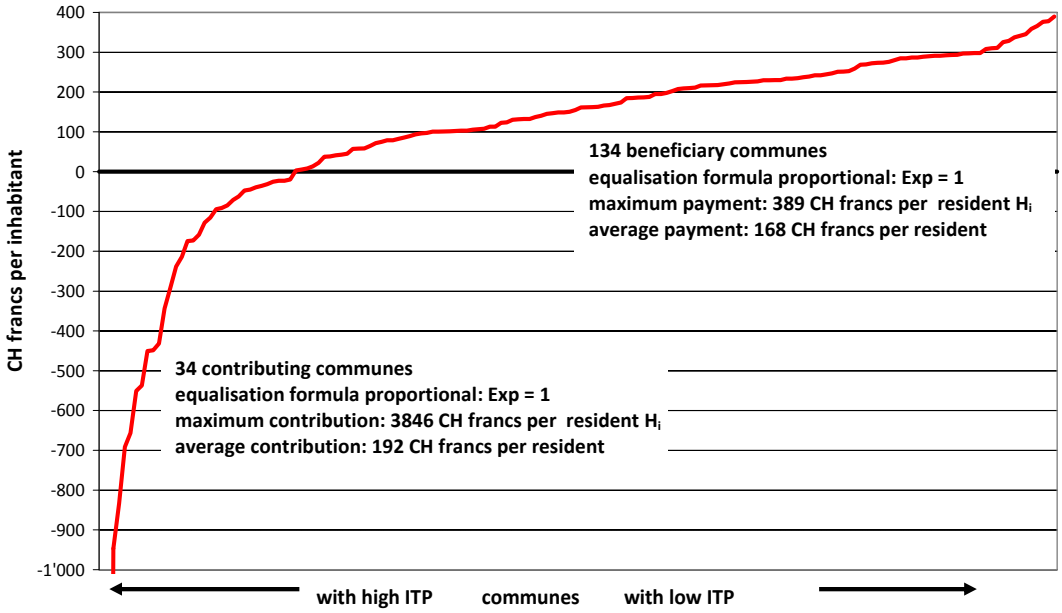
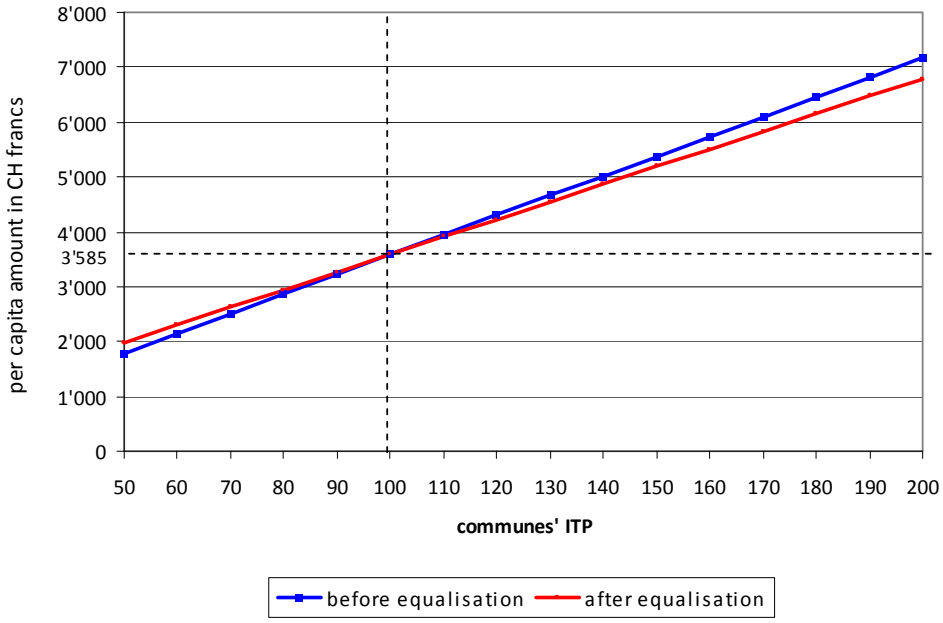


Table 14 **Resource equalization: before and after**

ITP	per capita TP before equalisation	equalizing amount		Exp = 1.00	
		per capita	in % of TP	communes ITP > 100	communes ITP < 100
1	2	3	4	5	6
200	7'170	849	12	6'321	
190	6'812	764	11	6'048	
180	6'453	679	11	5'774	
170	6'095	594	10	5'501	
160	5'736	509	9	5'227	
150	5'378	430	8	4'948	
140	5'019	343	7	4'676	
130	4'661	254	5	4'407	
120	4'302	172	4	4'130	
110	3'944	85	2	3'859	
100	3'585	0	0	3'585	3'585
90	3'227	83	3		3'310
80	2'868	170	6		3'038
70	2'510	254	10		2'764
60	2'151	337	16		2'488
50	1'793	377	21		2'170
average	3'585				

Source: author's calculation from the 2005-6-7 reference years

Figure 15 Revenue equalisation before and after



The stylised performance is represented in Table 14 and Graph 15. Whereas the average per capita tax potential before equalization is 3585 CH francs, minimum and maximum are distant four-fold before equalization; after-equalization distribution is reduced to three-fold. This is the implicit performance target at the time the law was decided. It remains to be confirmed in four years if this objective is fulfilled.

In terms of communal tax coefficient, contributing communes with ITP > 100 point contribute between 2 and 12 % of their TP. Since the average is calculated at 100, these percent also correspond to equivalent centimes in the CHF franc. Beneficiary communes receive the equivalent of 3 to 21 points or equivalent in centimes. Combining Table 8 and Table 14, one can see that only 7 communes have an [ITP<60] and receive more than 10 centimes: with this result the disincentive effect seems to be quite limited.

6.2 Expenditure needs equalisation

Expenditure needs equalization is vertical. It amounts to half the revenue equalization. All communes receive an equalizing transfer proportional to their population weighted by their SIN_i. The distribution formula (equation 3) is given an EXP = 4, so that expenditure needs equalisation is progressive. Payments are in block grants, not earmarked.

Table 16 presents the stylised per resident equalizing amount resulting from the majority decision in Parliament given in the law. The average per inhabitant equalizing amount is 45 CH francs. The commune with the highest SIN (146 points) receives 220 CH francs; the commune with the lowest (60.90 points) receives 6.59 CH francs per resident. Contrary to revenue equalization where we can consider the "before" and "after" position to evaluate the equalizing performance, expenditure needs equalization does not give comparative positions of this sort. It is not possible to oppose the actual per capita expenditures in the communes for the selected functions since those expenditures are actually distorted by indirect equalization. And the ad-hoc variables method does not require fixing standard levels of expenditures in the communes, which deprives the analyst of the necessary benchmark. This situation leaves open the question of how to assess the performance in the future. We have no answer at this point of time.

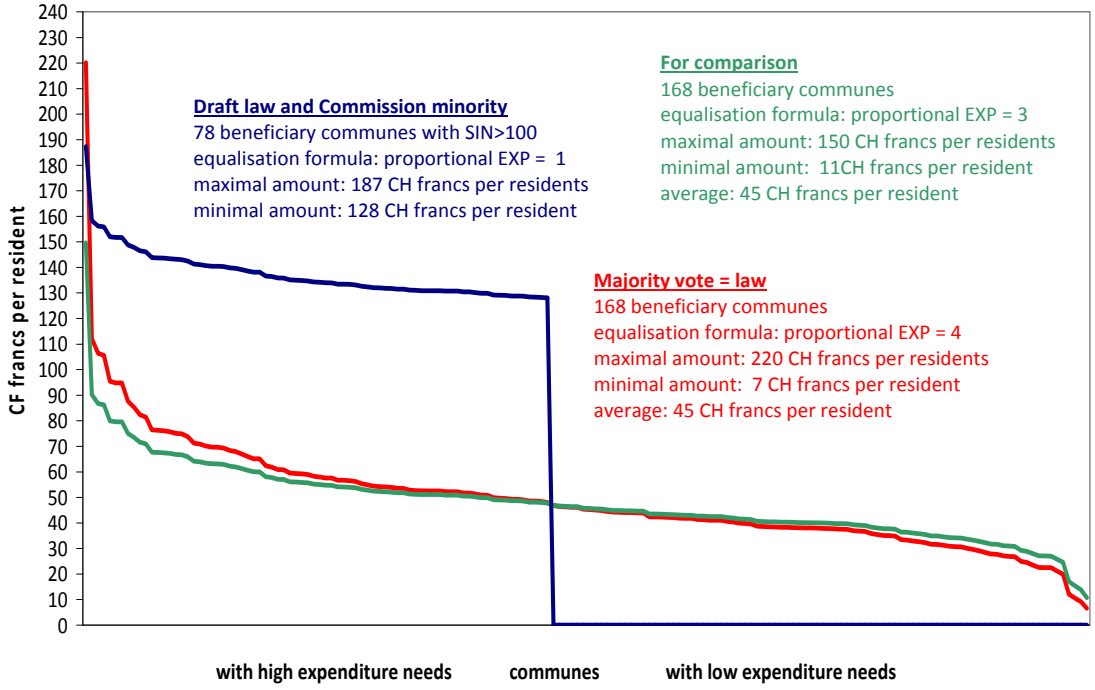
Figure 17 gives the performance with the actual decision of Parliament (red) and compares it to the proposal in the project law to restrain equalizing payments to those communes with SIN > 100 points only. It also represents for comparison the equalizing distribution that would occur with EXP = 3. As we said before, the higher the EXP the more redistributive is the formula. However, it is interesting to see in the figure that more progression in the distribution is mostly favourable at both ends of the curve.

Table 16 Expenditure needs equalization according to SIN with EXP 4

78 communes with SIN > 100		90 communes with SIN < 100	
SIN	Amount in CH francs per resident	Amount in CH francs per resident	SIN
146	220	39	95
120	104	31	90
110	71	20	80
105	58	12	70
100	48	7	60

Source: Service des communes du canton de Fribourg; own calculation resulting from the decision of Parliament

Figure 17 **Expenditure needs equalisation 2005-2007**
M = *11.8 CH francs - equalisation in CH francs per inhabitant*
Equalisation formula: EXP 3 and 4

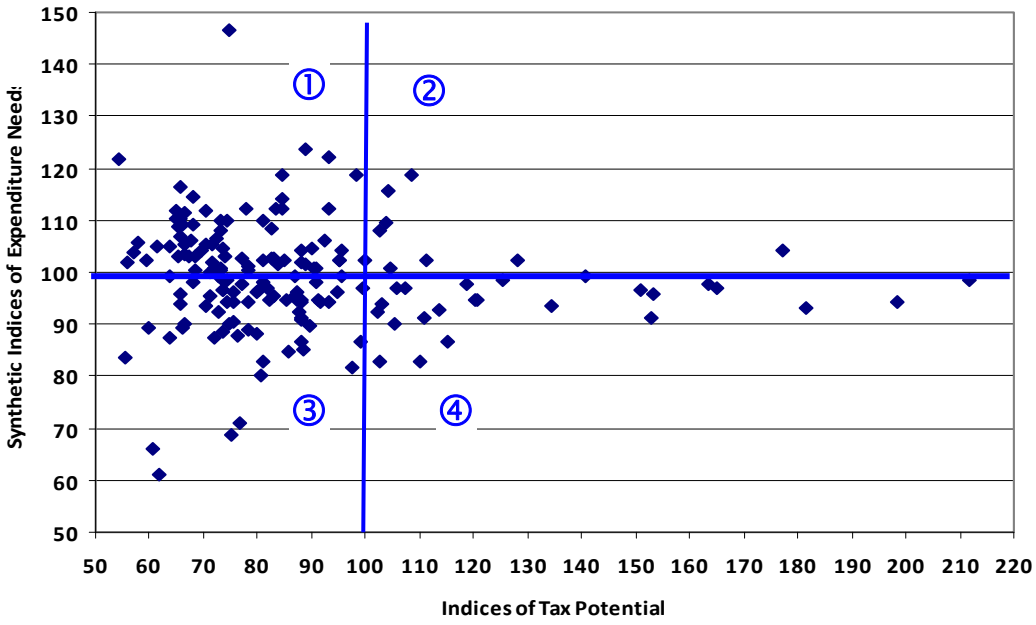


6.3 Comparison ITP and SIN

Remember Box 4 (section 2.2). The political economy argument was that revenue equalisation and expenditure needs equalisation ought to be distinct because experience shows that local public finances have not evolved in a symmetrical way. Figure 18 gives some credibility to this argument, tough caution must be observed since it is based on three reference years only. But one can readily see divergences in the comparison between the synthetic indices of expenditure needs and the indices of tax potential. Figure 18 is divided in four quadrants. In (1) communes have above average needs but below average tax potential: this is the typical signal of fiscal imbalance – though it must be remembered that we are here in an hypothetical world which consists of tax potential and needs measured by variables and not real expenditures. Nevertheless the situation disserves some close attention. In (2) communes have at the same time higher than average needs and tax potential: this situation should not create problem particularly since the position of individual communes stretches along the horizontal line which indicates more and more tax potential.

The situation is even more favourable in quadrant (4) where needs are below average but tax potentials remain high. Quadrant (3) is again problematic: needs are lower than average but positioned mainly between the 90 to 100 lines whereas tax potentials stretch from 55 to 100 points. This is again a sign of budget difficulties.

Figure 18 Comparaison SIN - ITP



6.4 Political acceptance

Since the new equalization scheme engages the cantonal budget beyond the expenditure limit for referendum, it has to be voted and was accepted on March 7, 2010 by 76 % of the voters. The detail results in each commune are published, so that it is possible to measure the political acceptance of the new scheme. Analysing vote results is not an easy matter, and certainly not one with which economists are familiar. Therefore some indulgence is required. From the political economy point of view, the problem is to decide whether the vote analysis must proceed from the marginal or the average position of individual communes in equalization. By "marginal" position, we understand the "bonus" or "malus" that the new scheme produces in the financial position of a commune relative to the present system. A pure egoistic model suggests that voters in communes which will have to pay more or receive less with the new scheme will reject it. By "average" position, we understand that voters will appreciate the position of their commune relative to the position of others, predominantly neighbouring communes, in the new

scheme without comparing the new scheme to the previous one. In the following attempt, we opt for the "average" approach. The reason is simple and direct: except for the members of the Task Force and, probably, the parliamentary Commission, there are not many voters who are really interested in the detail calculation and a comparison "old – new" systems despite the fact that the Message gives this information (Conseil d'Etat, 2009: 22-27). The grassroots political debate was about changing the system, not really with the financial issue since it was known from the outset that it was a zero-sum additional budget for the reform.

Political acceptance of the new equalisation policy is assessed in comparing in the individual communes the percentage of votes which accept with first the ITP and second the SIN. A synoptic view is given in Figure 19. In this Figure communes are ranked from left to right according to the rate of acceptance in the March 7, 2010 vote. This is compared with their SIN and ITP. At first glance, the communes' SIN stretch along the 100 % line without much influence on the vote. But this is not the case for the communes' ITP: on the right hand of the figure, the higher ITP seem to coincide with a lower acceptance in the votes. This is further scrutinized with correlation analysis.

The hypothesis to test is that if voters are selfish they will refuse a policy that will cost them. In the case of ITP, communes with ITP > 100 points would tend to reject the new policy; communes with ITP < 100 points would accept it. Figure 20 gives the result. The correlation coefficient is -0.405. The sign is correct, but R is not significant. With the SIN, the hypothesis is that the higher the index of needs, the higher the acceptance. The correlation coefficient should have a positive sign. Figure 21 gives the result. In this case, the correlation coefficient is -0.034: the sign contradict the hypothesis, but the result is totally insignificant.

Figure 19 Rates of Vote Acceptance in the 168 communes, March 7, 2010

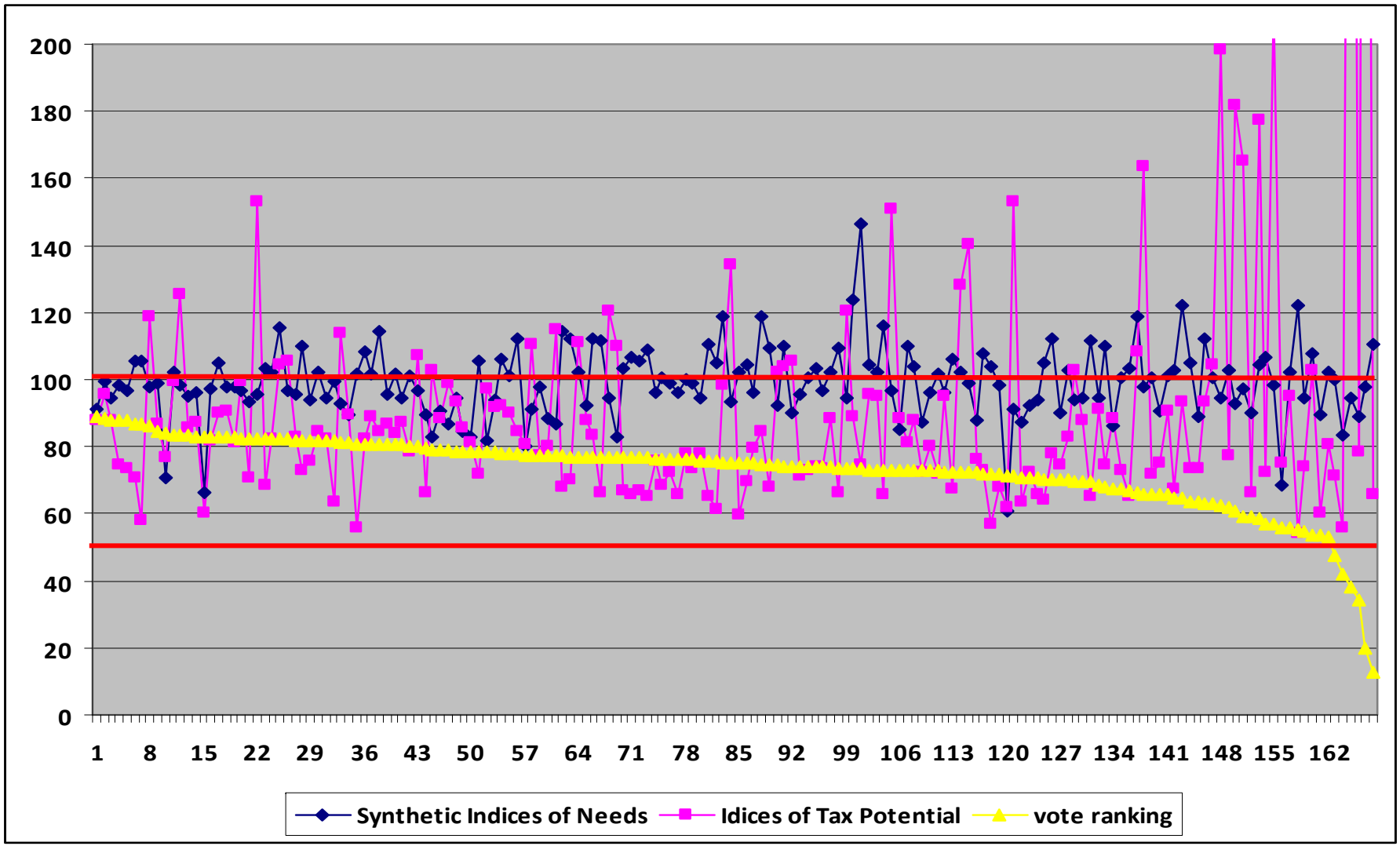


Figure 20 Vote acceptance - ITP

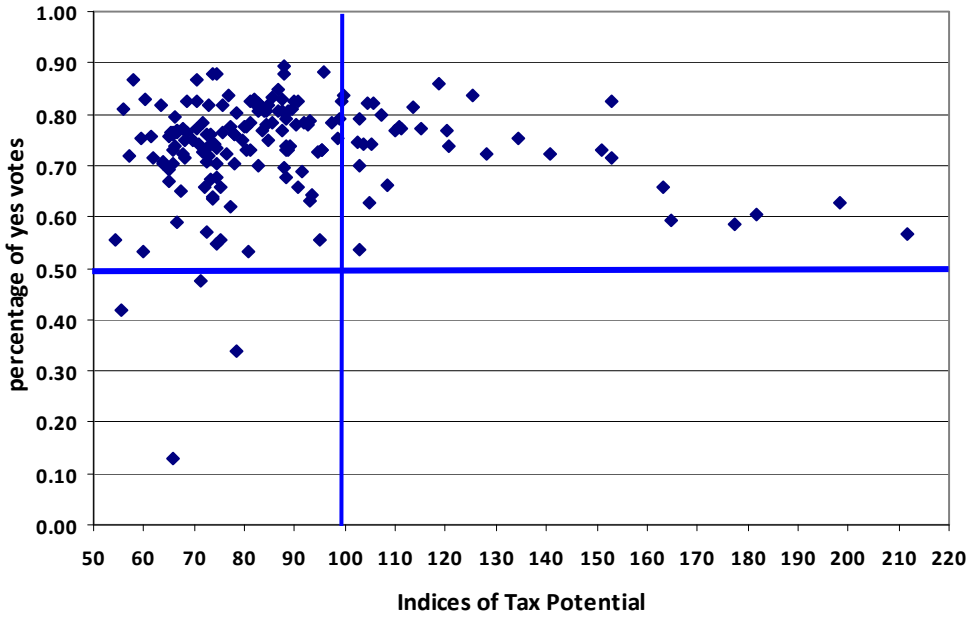
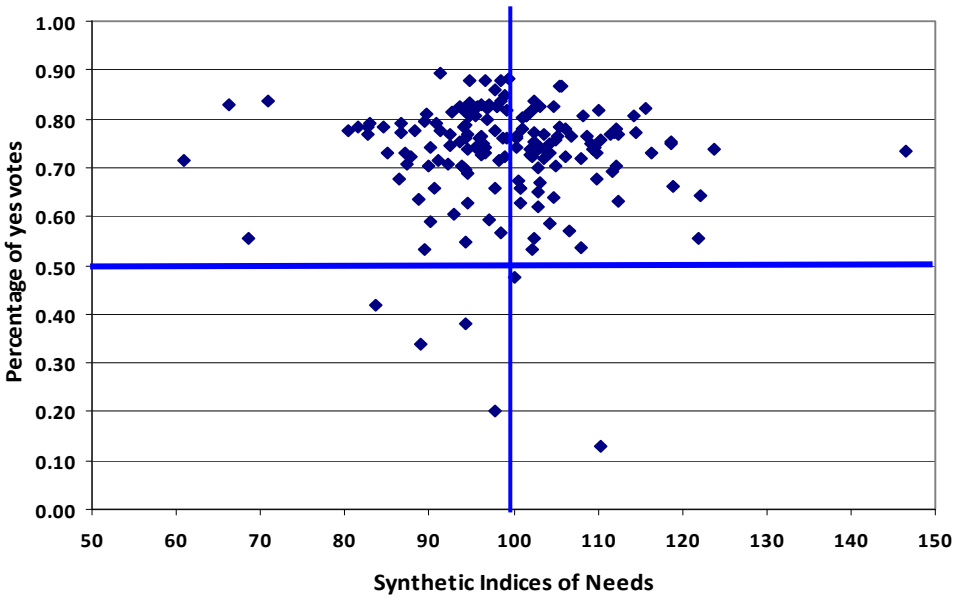


Figure 21 Vote acceptance - SIN



7 Conclusion

The Fribourg experiment has been described thoroughly and as truthfully as possible. There is no conclusion to be derived at this stage. Equalization has been so decided; it is too early to assess its real performance and the satisfaction that communal and cantonal authorities will gain from it. It will be implemented in 2011 and the first appreciation will intervene after four years, most probably in early 2015. But there are lessons to be learned by the profession.

First, it is impossible to solve equalization in practice by nice econometric models and mathematical papers, so frequent in new academic thinking. As the experience shows, equalisation is about solidarity. And solidarity is normative: it is a matter of ethical choices – it belongs to the realms of politics. Thus economist making models are also making normative choices in place of politicians. It is not the economist's role.

Yet, at the same time, this experience is a plea for the political economy of […]. Political economy and its toolbox, inclusive of quantitative economic methods, offer a splendid open horizon for economists' contributions. It is not about delivering ready-made solutions, but about accompanying the stakeholders in the process of transforming a concept, "solidarity", into practical policy measures, "equalisation", as best as one can. It is an economy of process, not of product.

The technicalities of the experiment presented in this paper and the complexities due to the search of efficacy and coherence are not detrimental to transparency, accountability and acceptability. This is a long and painstaking process, but highly rewarding in the exchanges of opinions and competences with the stakeholders. They are confronted with the daily political and budget problems; the experts cannot ignore these preoccupations, but can give some distance to the debate and hopefully more coherence to the political design. It also obliges them to use a simple and direct language: professional jargon is useless in these circumstances. In the Fribourg experiment, the democratic hurdles were the stakeholders, represented in the Task Force, the cantonal political authorities, in fine the Parliament and its powerful "specific project committees", then the voters since any law with long term financial engagement is submitted to compulsory referendum. The optimistic message is that it is possible if the process is transparent, fully informed and not partisan. Scores in parliamentary decisions and the citizens' vote prove it. Simply, the university must step into the city without compromise on the quality of its work and engagement.

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Annexure I Contributions of the communes to cantonal expenditures, 2005-2007, FUNCTIONAL DISTRIBUTION

Communal contribution to cantonal functions	*Equalization system*	2005	2006	2007
16 Civil defence				
Instruction	D	594'645	613'150	528'095
Equipment	D	35'056	46'155	42'870
subtotal		***629'701***	***659'305***	***570'965***
2 Education				
Salaries (kindergarten)	B	11'324'624	11'911'554	12'071'745
Social security (kindergarten)	B	1'969'515	2'044'442	2'114'867
Transportation for support teachers (kindergarten)	B	215'274	207'083	238'706
Salaries (primary school)	B	75'631'926	77'986'221	79'898'968
Social security (primary school)	B	13'003'867	13'392'264	13'702'443
Transport costs for support teachers (primary school)	B	3'009'556	2'989'215	3'121'135
Miscellaneous (primary school)	B	158'273	184'447	31'326
subtotal		***105'313'035***	***108'715'226***	***111'179'190***
5 Social Affairs and Aid				
Old age pension OAP	A	8'336'571	9'522'083	9'988'364
Disabled pension schemes DPS	A	15'247'601	16'253'027	17'099'620
Complementary aid to OAP	A	15'716'800	12'930'348	13'314'801
Complementary aid to DPS	A	9'272'911	7'976'228	7'814'293
Child benefit in agriculture	A	934'944	900'724	796'055
Child benefit for independent activities	A	798'424	823'653	856'884
Management cost complementary aid to OAP	A	0	381'654	394'182
Management cost complementary aid DPS	A	0	138'878	157'121
Illness insurance IA	A	10'147'365	10'252'158	10'679'154
Management of IA	A	0	731'500	775'500
Institution for disabled persons	A	34'392'362	29'793'424	35'889'475
Medicare in residence for elderly people	D	19'463'972	22'851'504	22'775'431
Urgent social aid	E2	560'937	727'301	931'441
Aid to victims of assault and serious offence	C	161'113	115'397	114'633
Measures for social reinsertion	E2	563	833	60'150
Aid to mono parental families	A	1'553'561	1'427'630	1'498'422
subtotal		***116'587'124***	***114'826'342***	***123'145'526***
6 Transports et communication				
Regional traffic	C	5'733'004	5'733'340	5'898'828
Lake public navigation transport	C	119'907	98'410	120'652
subtotal		***5'852'911***	***5'831'750***	***6'019'480***
9 Finances				
Amalgamation of communes	C	1'200'006	782'942	0
subtotal		***1'200'006***	***782'942***	***0***
Total I		**229'582'777**	**230'815'565**	**240'915'161**
Cantonal grants-in-aid to communes		**2005**	**2006**	**2007**
5 Social Affairs and Individual Aids				
Social aid to citizens outside the canton	E1	3'329'857	4'043'742	4'515'971
Social aid to Swiss citizens in the canton	E1	3'753'309	3'889'981	4'305'266
Social aid to foreigners in the canton	E1	4'776'398	5'421'801	5'656'002
Measures of social re-insertion	E1	169'204	269'276	319'576
Total II		**12'028'768**	**13'624'800**	**14'796'815**
Total		**241'611'545**	**244'440'365**	**255'711'976**

System A: 50% population in the communes, 50% population weighted inversely to the classification of the commune, that is x 6 to x 1 for class 1 (the group of commune with the highest financial capacity indices) to class 6 (lowest indices).
System B: 30% population in the communes, 70% population weighted inversely to the classification of the commune that is x 6 to x 1 for class 1 to 6.
System C: 100% population weighted by the commune's index of financial capacity.
System D: 50% population and 50% population weighted by the commune's index of financial capacity
System E2: the same as D, but the calculation is per district (the 168 communes are distributed in 7 administrative districts)
System E1: grants-in-aid paid by the canton to the communes. Equivalent to system E2.

Annexure II Contributions of the communes to cantonal expenditures, 2005-2007
EQUALIZING EFFECTS

Equalization system	2005	2006	2007
	Amounts of communal contributions in CH francs		
A	96'400'539	91'131'307	99'263'871
B	105'313'035	108'715'226	111'179'190
C	7'214'030	6'730'089	6'134'113
D	20'093'673	23'510'809	23'346'396
E2	561'500	728'134	991'591
Total I	229'582'777	230'815'565	240'915'161
	Proportion of the equalization amount in the contributions		
A	48'977'050	46'279'469	50'381'147
B	73'719'125	76'100'658	77'825'433
C	7'214'030	6'730'089	6'134'113
D	10'046'837	11'755'405	11'673'198
E2	280'750	364'067	495'796
Total II	140'237'791	141'229'687	146'509'686
% of the total communal contributions	61.08%	61.19%	60.81%
In % of total I	***Equalizing effects***		
A 9.3%	8'869'789	8'376'142	9'104'410
B 11.3%	11'643'079	12'340'419	12'612'057
C 9.8%	706'948	659'030	600'006
D 4.9%	984'552	1'151'123	1'141'810
E2 3.6%	20'433	26'503	36'107
Total III	22'224'800	22'553'217	23'494'390
% of the total I communal contributions	9.68%	9.77%	9.75%

Source: Service des communes, Canton de Fribourg, up-dated data from Dafflon et al., 2004 (which used years 2001-2003)

Annexure III Construction of the ITP Indices of Tax Potential

The indices of the communes' tax potential use:
- eight forms of taxation
- calculated on average for three years
- weighted with the respective proportion of each tax in the total.

The formulas are:

$$ITP_i = 100 \times \sum_{T=1}^{8} W_{T1} \times \frac{\sum_{y=t-2}^{t} \frac{R_{iTy}}{H_{iy}}}{\sum_{y=t-2}^{t} \frac{\sum_{j=1}^{168} R_{jT1y}}{\sum_{j=1}^{168} H_{jy}}}$$

where $$W_T = \frac{\sum_{j=1}^{168} \sum_{y=t-2}^{t} R_{jTy}}{\sum_{T=1}^{8} \sum_{j=1}^{168} \sum_{y=t-2}^{t} R_{jTy}}$$

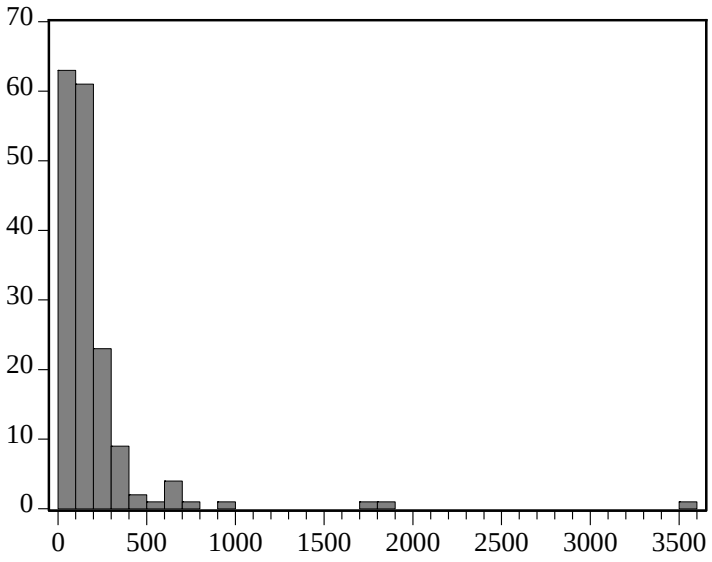
W weight attached to each tax potential
T the number of taxes: (1) on personal income; (2) personal wealth; (3) corporate profits; (4) corporate capital; (5) immovable properties; (6) on capital gains; (7) at source (foreign earnings); (8) motor vehicles
Y years (3 years are considered noted by t, t-1 and t-2: in 2010, this corresponds to 2008, 2007 and 2006 given the statistical time lag)
R tax yield for each of the eight taxes
H resident population of the commune "i"

Thus, for commune "i", its ITP is calculated in the following way:
Step 1) For tax T (for example on personal income), the formula adds its per capita tax potential $[R_{T = income} / H]$ for three years [y = t, t-1 and t-2], that is $\sum_{y=t-2}^{t} \frac{R_{iTy}}{H_{iy}}$ in the first equation.
Step 2) This result is compared to the same calculation for the 168 communes (denominator in the right hand fraction).
Step 3) Since there are 8 taxes taken into account, but one index is calculated, the next step is to give a weight to each tax. This is obtained with W in the second equation. W is obtained in calculating the proportion of each tax T for three years [y = t, t-1 and t-2] for the 168 communes [j = 1 to 168] – in the numerator of the fraction – to the addition of the total potential tax yield for the eight taxes [T = 1 to 8] – in the denominator.
Step 4) The calculation is reproduced for the eight tax, thus $\sum_{T=1}^{8} W_T$ in the first equation.

Annexure IV Transformation of the population density variable

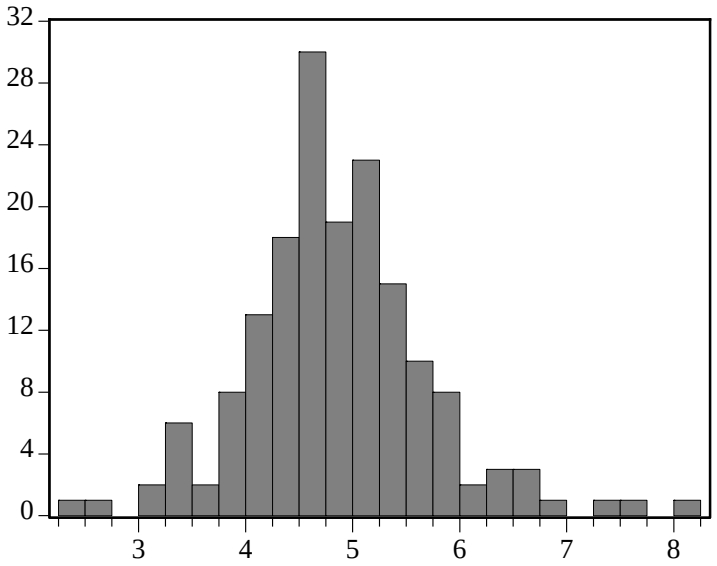
Graph 1 below provides the absolute frequency distribution of population density (population / km^2) of the 168 municipalities in the canton of Fribourg (2006). Graph 2 illustrates the natural logarithm of the same function. On the vertical axis is the number of observations (communes). On the horizontal axis is the density of population in graph 1 and the natural log in graph 2.

Graph 1 Population density



Density	
Observations	168
Mean	202.7440
Median	120.7463
Maximum	3539.485
Minimum	10.73229
Std. Dev.	346.0903

Graph 2 Natural logarithm of population density



LogDensity	
Observations	168
Mean	4.856512
Median	4.793688
Maximum	8.171737
Minimum	2.373257
Std. Dev.	0.853774

Annexure V Construction of the SIN Synthetic Indices of Needs

The index formulas below are given for one reference year in order to simplify the mathematical formulation. But with the exception of index (c), for implementation each partial index is calculated for three years and the average is used in the computation of the synthetic index of need. For example, $POPD_i$ is calculated for 2007, 2006 and 2005 - parallel to the last yearly statistical data available for the calculation of the Indices of Tax Potential ITP. The 2005-2007 average serves in SIN. And the same for all indicators.

For index (e), the reference years for school-aged children is actually from 5 to 14 (Conseil d'Etat, 2009, Message 141: 15). But with the decision of the voters earlier in 2010 to accept the intercantonal agreement Harmos concerning the harmonisation of the compulsory school years and programmes, the communes have to introduce a second year of kindergarten for 2013 at the latest. Then the age will be 4 to 14.

- i the commune for which the calculation is made
- j for commune (there are 168 communes in the canton of Fribourg)
- Ln natural logarithm transformation
- H number of inhabitants
- km^2 square kilometre of surface (without lakes, rivers and rocky mountainous areas)
- WP the number of working places: it is the statistical definition of "working places" that is the number of employment equivalent to between 90 and 100% of the reference contractual time in the enterprise (Conseil d'Etat, 2009, Message 141: 14).
- Δgw for rate of growth, given by (H_i 2007 – H_i 1998)/H_i 1998
- K weight given to a particular index, with the condition that $\Sigma K = 1$.

(a) Population Density POPD

$$\text{(a) Index } POPD_i = \frac{\text{Ln } POPD_i}{\text{Ln } \overline{POPD}} \times 100 = \frac{\text{Ln} \dfrac{H_i}{km_i^2}}{\text{Ln} \left\{ \dfrac{\sum_{j=1}^{168} H_j}{\sum_{j=1}^{168} km_j^2} \right.} \times 100$$

(b) Working Places WP

$$\text{(b) Index } WP_i = \frac{\text{Ln } WP_i}{\text{Ln } \overline{WP}} \times 100 = \frac{\text{Ln} \dfrac{WP_i}{H_i}}{\text{Ln} \left[\dfrac{\sum_{j=1}^{168} WP_j}{\sum_{j=1}^{168} H_j} \right]} \times 100$$

(c) Population Growth POPGW

$$(c)\quad \text{Index POPGW}_i = 100 + \left(\frac{1}{2}\left[\left(\Delta gw^{1998-2007} H_i\right) - \left(\Delta gw^{1998-2007} H_{canton}\right)\right] \times 100\right)$$

(d) Population aged 80 and over POP80

$$(d)\quad \text{Index POP80}_i = \frac{\text{POP80}_i}{\overline{\text{POP80}}} \times 100 = \frac{\dfrac{H_i^{2007} \text{ if age} \geq 80}{H_i^{2000}}}{\dfrac{\sum_{i=1}^{168} H_i^{2007} \text{ if age} \geq 80}{\sum_{i=1}^{168} H_i^{2007}}} \times 100$$

(e) School children aged 5 to 14 SCC

$$(e)\quad \text{Indice SCC}_i = \frac{\text{SCC}_i}{\overline{\text{SCCC}}} \times 100 = \frac{\dfrac{H_i \text{ if } 5 \leq \text{age} \leq 14}{H_i}}{\dfrac{\sum_{j=1}^{168} H_i \text{ if } 5 \leq \text{age} \leq 14}{\sum_{j=1}^{168} H_j}} \times 100$$

Synthetic Indices of Needs SIN

$$\text{SIN}_i = \left(\frac{1}{3} \times \sum_{t=1}^{3} \text{POPD}_i^t \times K_1\right) + \left(\frac{1}{3} \times \sum_{t=1}^{3} \text{WP}_i^t \times K_2\right) + \left(\text{POPGW}_i \times K_3\right) + \left(\frac{1}{3} \times \sum_{t=1}^{3} \text{POP80}_i^t \times K_4\right) + \left(\frac{1}{3} \times \sum_{t=1}^{3} \text{SCC}_i^t \times K_5\right)$$

Annexure VI Calculation of weights

[number of the function in the FR accounting system]	Total in CH francs	weight	(a) ln population density,	(b) ln ratio of work places to population	(c) ½ difference of population growth over ten years	(d) ratio of population aged 80 and over to population	(e) ratio of school-aged children 5 to14 to population
Communal Accounts 2005							
(2) compulsory school and special school services, [functions 200, 210, 217, 221]	224'925'127	0.472					0.472
(3) care and residential facilities for elderly people, [functions 41, 44, 57]	65'972'964	0.139				0.139	
(4) social aid, [function 58]	58'759'645	0.123	0.123				
(1) justice, police, security and public order, [function 1]	126'474'339	0.133	0.044	0.044	0.044		
(5) local roads and public transport [function 6].		0.133	0.044	0.044	0.044		
Total:	476'132'075	1.000	0.212	0.089	0.089	0.139	0.472
Communal Accounts 2006							
(2) compulsory school and special school services, [functions 200, 210, 217, 221]	233'285'169	0.476					0.476
(3) care and residential facilities for elderly people, [functions 41, 44, 57]	70'620'494	0.144				0.144	
(4) social aid, [function 58]	61'631'405	0.126	0.126				
(1) justice, police, security and public order, [function 1]	124'959'495	0.127	0.042	0.042	0.042		
(5) local roads and public transport [function 6].		0.127	0.043	0.043	0.043		
Total:	490'496'562	1.000	0.211	0.085	0.085	0.144	0.476
Communal accounts 2007							
(2) compulsory school and special school services, [functions 200, 210, 217, 221]	242'841'239	0.483					0.483
(3) care and residential facilities for elderly people, [functions 41, 44, 57]	71'336'340	0.142				0.142	
(4) social aid, [function 58]	60'406'982	0.120	0.120				
(1) justice, police, security and public order, [function 1]	128'623'905	0.256	0.085	0.085	0.085		
(5) local roads and public transport [function 6].							
Total:	503'208'466	1.000	0.205	0.085	0.085	0.142	0.483

Source: Annuaire statistique du canton de Fribourg, 2006, 2007, 2008, Résultats des comptes communaux de fonctionnement, par fonctions; own calculation

The calculation of the weights is based on the published annual current accounts of the communes. Functions numbering […] corresponds to the Swiss Harmonised Accounting System for the Public Sector, Edition 1981. Weights given in Box 8 in the text correspond to the average based on the years 2005-6-7; remaining differences are due to two digits round values.

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Abstract
This paper formalizes the new schemes of fiscal equalization that has been decided in 2009 and will be introduced at the local level in the canton of Fribourg (Switzerland) in 2011.
It develops the political economy of the proposal with the aim of understanding the participative democratic process that led to the acceptance of a radical change in the canton's equalization policy, the

Keywords
Local public finance, equalization, economic disparities, financial transfers, tax potential, expenditure needs, solidarity

JEL Classification
H70, H72, H73

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